Smallholder Global Value Chain Participation: The Role of Aggregation

by

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Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor of Philosophy
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ABSTRACT

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Abstract

Smallholder farmers have been at the center of the development discourse not only because they represent a significant portion of the world's extreme poor but because of their potential role in food security, climate change and gender equality. Smallholders account for 70% of global food production but most of them in the developing world operate in the informal markets. Market formalization is accelerating even in the least developed countries, however, and formal market channels are gradually displacing informal ones. Global value chain based formal markets may also offer opportunities for smallholders to tap into fast growing international markets for high value agricultural products.

One of the key challenges policymakers, the development community and agribusinesses face, however, is smallholders' limited formal organization ("producer organizations") that aggregate their production and demand for goods and services in order to enable more effective market participation ("aggregation"). Only 5-10% of farmers globally are estimated to participate in formal producer organizations. This is despite the fact that such organizations have been supported by both policymakers and the development field as a way of tackling poverty and addressing market failures.

The shift towards food production being organized based on global value chains and production networks and the fast dissemination of supermarkets and other modern food retail outlets around the world is creating increased need for smallholders to partake in some form of aggregation mechanism in order to become contributors to the global food system.

Agribusinesses that buy agricultural products have therefore also been encouraging producer organizations as a way to improve their ability to source from smallholders. Nonetheless, of the producer organizations that do exist in emerging economies, only a negligible portion have been able to achieve stable access to the growing global market of high value agricultural products.

The objective of this dissertation is to contribute to the understanding of this paradox and to identify factors that may improve the likelihood and effectiveness of aggregation. The structure of this work is as follows: first the research problem and the gap in the literature (Chapter 1) will be defined, followed by the review of existing scholarship on smallholder agricultural producers, the globalization of agribusiness and global value chains as well as the literature on the aggregation of smallholder production, producer organizations and their access to global and modern value chains (Chapter 2).

Next a conceptual framework will be proposed based on which a model for smallholder global-value-chain-relevant aggregation (Chapter 3) will be developed that takes into account the producer organization types, the services offered by the producer organizations, producer organizations' access to financing and the requirements of global value chains.

The model will be tested first using the population of Hungarian producer organizations, and then a sample of Central American and Peruvian producer organizations (Chapter 4), utilizing the following hypotheses:

1. **"Collective identity narratives", manifesting themselves in Collective Identity Activities, play an important role in facilitating the growth and competitiveness of POs.**
2. **Services, including access to financing for farmers, provided by POs play an important role in facilitating scaling.**
3. **Cooperatives are at a disadvantage compared to other producer organization (PO) forms in achieving the conditions of global value chain access.**

The empirical analysis has five main findings. First, because trust is so important in enabling farmer participation in collectives, shared narratives that establish collective identity may play a role in ensuring not only farmer loyalty but also may help improve producer organizations' performance, particularly as organizations grow. Second, organizations that offer more services to farmers

are more likely to scale and hence achieve global value chain access. However, this study found that considerable variation among services, some having much more significant relationship to the ability to scale than others. Third, cooperatives, the producer organization form most often supported by policymakers and the development field, on average were found less effective than other forms of producer organizations in their ability to connect farmers to global value chains. Having said that, it is important to highlight that the study also identified several cooperatives and some common patterns among them that outperformed both their cooperative and non-cooperative peers. Fourth, while this study adds to the evidence that smaller farmers within the smallholder group are at a disadvantage when it comes to PO participation and may, therefore, require differentiated support when it comes to interventions, it also identified several POs that work with some of the smallest farmers and still outperform their peers. Fifth, the study found that POs' access to financing is important for modern market access, in addition to meeting quantity and quality requirements.

The policy implications of these findings are considerable and recommendations for interventions conclude the paper (Chapter 6) after the

discussion of this study's limitations (Chapter 5). The key policy findings include that cooperatives are not the panacea for development and policymakers should also consider other forms of producer organizations for support. Importantly, policymakers should rather consider linking their support to certain aggregator characteristics and activities, including services offered since some services appear to have stronger relationships than others with POs' ability to succeed. Among these services access to finance for farmers as well as research and development and innovation play crucial role and therefore deserve heightened attention from policymakers while access to finance at the PO level has also been found to be important. In addition, PO activities that help build collective identity are associated with POs' productivity and ability to scale.

In terms of the arguable trade-off between sustainability and smallholder inclusion, a finding of the present work is that smallholders have the potential to achieve significantly higher productivity than their larger counterparts and their POs can successfully access modern markets as long as they are provided with the necessary support related to sustainable intensification of their production and access to capital for making the necessary investments.

Dedication

As a child I observed my grandmother organizing about a hundred women into a cooperative to knit baby hats and sweaters in a small Hungarian village. Groups of women would gather for hours in my grandmother's veranda learning new patterns from her, exchanging experiences, testing new yarns or just simply sharing stories. They all took great pride in the quality of the products and sewing little "made in Hungary" labels on the finished pieces and care instructions in several languages. For most of them this was their only source of independent income not to mention the sole source of formal income that made them eligible for pension and other benefits later in life. These experiences were an inspiration for some of my own work as a practitioner and my choice of dissertation topic.

Organizing the women in my grandmother's village into a group that allowed them access to input, information, skills, resources and ultimately a market to sell their products, is what I will refer to as "aggregation" in this paper. Aggregation helps small producers overcome the disadvantages of their small size and, often, remote location. Traditionally aggregation has taken place

mainly via cooperatives. Many in the international development field, where I myself have spent twenty years of my career, hold great hopes for such cooperatives. But can such cooperatives connect small producers to markets and improve their livelihoods in our highly globalized world? How can successful aggregation of small producers be achieved in the era of globalization and global value chains? In particular in the agri-food sector, which experienced unprecedented changes over the past 20 years? This paper attempts to shed some light to these questions.

Narrowing down my interest in this topic into testable research questions and staying the course was a considerable challenge for me and I would like to thank first and foremost Fritz Mayer for not giving up on me and guiding me through this journey with such dedication. His intellect and infallible logic kept bringing me back to the focus I needed. His recent book "Narrative Politics: Stories and Collective Action" also helped me recognize some of the less tangible dynamics observed among the organizations I studied and helped conceptualize them in this dissertation.

I am also very thankful to my other committee members. Gary Gereffi's novel global value chain framework changed forever how I approach

development problems and is a pillar of this dissertation. I am honored to have him advise my work and his guidance has been invaluable. Phyllis Pomerantz's wisdom and compassion helped me through some of the lowest points of this journey. An international development executive throughout her successful career, her guidance has been instrumental in keeping this work grounded to not lose sight of the real world problems. Anirudh Krishna's work on social capital has been a model for me in its humanitarian application of social science and academic rigor. I am very grateful to Greg Dees for inspiring me to come to Duke and for being a mentor and guide all along. The notes from my discussions with him miraculously helped guide my work even after he so unexpectedly left us last December.

I would also like to express my gratitude to James Scriven and Ajay Narayanan at IFC for giving me the opportunity to lead several projects on sustainable agri-food value chains and value chain finance over the last four years, which was not only a rewarding experience professionally but also allowed me exposures and insights that helped enrich this work.

I met some of the most interesting people and had some of the most thought provoking conversations of my life in the process of working on this

dissertation. I am indebted to all the people, too many to name, who agreed to talk to me and offer their thoughts and insights and those who read my various drafts and offered comments. I am very grateful to the leaders of the producer organizations and farmers who agreed to take time off from their busy lives to be interviewed as part of this work. I am especially thankful to Jozsef Csurke, Janos Szabo, Marianna Molnar, Noemi Perez, Jozsefne Mate, Peter Szucs, Helga Takacs, Imre Gulyas, Zsuzsanna Toth Nyulne, Dr. Miklos Csikai and Pal Hodi for their help and input.

This dissertation is dedicated to my mother, without whose help I could have never completed this work, to my husband Karl, whose optimism and faith in me kept me going, to my children, Kristof and Katrina, who took on responsibilities and made sacrifices to allow me the time and space for writing, and to the memory of my grandmother.

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Dr. Miklos Csikai[1]: "In the globalized world our only chance is cooperation."

[1] Quote from interview with Dr. Miklos Csikai, CEO of Arpad Zrt, largest member of DelKertesz Producer Organization.

1. Research Problem and Gap in the Literature

Smallholder farmers are gaining attention in the development policy debate because of their importance in poverty alleviation, food production, food security, women's empowerment, conservation and climate change. Effectively reaching large numbers of smallholders has been a major challenge for the public, private and not-for-profit sectors alike. Producer organizations are considered to be an important part of the solution to this challenge by helping integrate smallholders into the global economy and are therefore widely supported by policymakers. Nevertheless only 5-10% of farmers are estimated to participate in formal producer organizations. Furthermore of the producer organizations that do exist in emerging economies only a small portion has achieved sustained integration into the growing global market of high value agricultural products. The objective of this research is to contribute to the understanding of this paradox.

Smallholder agriculture is at the center of policymakers' attention both at the local and international level.[1] There is no example of mass poverty reduction in recent history without significant productivity and income gains for small farmers (Lipton 2005). Agriculture is a major employer and driver of economic growth, and it is agriculture where growth has the most poverty-reducing impact (Ravillion et.al, 1996). Agriculture is also major user of natural resources – such as land, soil and water – and a provider of a variety of ecosystem services. It is a significant contributor to global greenhouse gas (GHG) emissions, yet it has great potential for carbon sequestration. Climate change is introducing new urgency for small-farmer-related policy intervention as climate change induced extreme natural events pose a disproportionate threat to some of the least developed countries where smallholder farmers are the most vulnerable to such events with no access to means of mitigating these risks (Fan et.al. 2013).

[1] "In the coming years, agriculture will require profound changes to fulfill its multiple functions against harsher environmental conditions and demographic and market transformations. Smallholder family agriculture, or smallholder agriculture, will be at the center of these changes." (IFAD, 2013)

In least developed countries where working age men migrate to cities and abroad in the hope of finding better livelihood opportunities, smallholder agriculture is becoming increasingly feminized (IFAD Rural Poverty report 2011). The feminization of smallholder agriculture creates a new challenge for policymakers as women have traditionally been at a disadvantage when it comes to access to education, technology, and financing, as well as the ability participate in collective action and producer organizations (FAO 2010: Producer Organisations: Reclaiming Opportunities for Development).

Finally, global food security and nutrition depends on smallholder agriculture. Small farms currently are estimated to produce four-fifths of the developing world's food. Moreover they have the potential for significant productivity increase and waste reduction (IFPRI From Subsistence to Profit, 2013), which will be essential to meet the estimated 70% increase in food demand by 2050[2].

Agriculture is a sector with a history of strong government involvement including subsidies in various forms, trade protection, and, in many countries,

[2] Source: FAO How to Feed the World 2050 (2009).

state ownership, usually driven by social and food security concerns (Dicken 2007). In the spirit of the neoliberal economic policies of the past decades, however, government involvement has been gradually declining (P Hazell et.al., 2007) with emphasis shifting towards market-oriented solutions for social problems. Promoting smallholders' global and modern market access has become a central objective of market-oriented development policies. Farmers may indeed have the possibility to considerably improve their incomes by connecting to modern[3] and global value chains as potential gains associated with increased trade and easier movement of goods and services are becoming increasingly clear (GHI, 2013). For example in Peru, quinoa, which used to be produced almost exclusively for domestic consumption and its production is dominated by smallholder farmers[4], has become a significant export product contributing to improved producer income and livelihood (GHI, 2013).

These trends are greatly influenced by the decline in nation-states' ability to lead and enforce in the increasingly globalized economy with their activities

[3] Modern markets operate based on global value chain (GVC) standards and specifications but they don't necessarily involve cross-border trade. Modern markets and global value chains will be used interchangeably in this paper unless otherwise stated.

[4] http://www.fao.org/family-farming-2014/news/news/details-press-room/en/c/223319/

limited to within national boundaries while social and environmental challenges have become increasingly transnational, leading to a "governance deficit" (Gereffi and Mayer, 2004). Therefore society has been demanding new forms of controls (Barrientos, et.al. 2011) leading to the need for new modes of governance and policy innovations (Mayer 2010).

The cross-border private governance of the global agri-food sector takes place primarily in the form of coordination among firms within global value chains (GVCs) through the use of voluntary standards.

However, modern value chains impose considerable entry barriers through standards and other prerequisites imposed on suppliers such as minimum quantity and various specifications. The minimum quantities that modern buyers require from a single supplier are generally much larger than smallholders can produce. Quality, attribute, food safety and other unobservable credence characteristics required represent additional challenges for smallholders.

Therefore farmer producer organizations (POs) that bulk or aggregate farmers' production are considered to be critical for farmers' market access and thus have been supported by international organizations, NGOs and

policymaker around the world. The importance of POs goes hand in hand with the increasing role of value chains connecting farmers with consumers (Bijman, Ton 2008). In many countries farmer producer organizations offer the sole possibility for farmers to access fast-growing modern agri-food markets. Nonetheless, successful farmer organizations are rare in less-developed countries. Significant public funds have been invested in promoting farmer organizations with mixed results both in terms of the number of beneficiaries and the sustainability of those organizations (Hellin et.al. 2007).

According to Hazell, et. al (2007), smallholders are yet to find a replicable institutional solution that helps them meet the demands of modern markets. Empirical evidence is limited, however, on the relationship between types of producer organizations and their ability to link farmers to modern markets. Therefore the first intention of this work is to explore if the form of the aggregator, in particular whether if it is organized as a cooperative, makes a difference in aggregators' ability to access modern markets. For this purpose this study differentiates cooperatives, investor owned firms and hybrids of these two forms. Cooperatives are autonomous membership organizations jointly owned

and democratically controlled by farmers (one vote per farmer regardless of farmer's size or other production characteristics), aiming to maximize the benefit incurred to members (which can be economic, social or cultural, or any combination thereof). In contrast, investor owned firms are controlled by their shareholders/owners pro rata with their ownership of the company. Hybrids of the two forms are also being discussed. Policy support has generally been targeted at the cooperative form of aggregation

The existing literature on PO participation focuses on the formation of farmer groups and farmer decisions about joining. Case studies and farmer surveys shed light to farmer attitudes regarding PO participation. Some of those studies offer evidence that services provided by POs positively influence farmers' decisions to participate in POs. However, we know very little about which PO services may be most helpful in enabling POs to achieve sufficient scale and to meet other GVC requirements, an important question considering limited PO resources. This is a key policy question since it is common for governments, development organizations and NGOs to support POs' service provision. The second intention of the present work is to add to our

understanding of what PO services and activities may be most useful in helping POs grow and achieve modern market access.

A third objective of this paper is to consider the role of trust, especially as organizations scale, and whether nonmaterial factors such as identity may be playing a role. In particular, this study will explore whether "collective identity narratives" and related activities may have a connection to farmers' participation in aggregators and aggregators' performance.

Finally, a fourth objective is to gain insights whether there is evidence that very small farms can be viable and whether differentiated support may be necessary to support their ability to join aggregators and access modern value chains.

2. Literature Review

This literature review will first (2.1-2.4) provide a background on the key topics that motivate this research: smallholder agricultural producers, the globalization of agribusiness, global value chains and modern markets and the public policy implications of those issues. This will be followed by a more in-depth review of the literature on the aggregation of smallholder production, producer organizations and producer organizations' participation in global value chains and modern markets.

2.1 Smallholder Agricultural Producers

Despite considerable progress in reducing poverty during recent decades, there are still about 1.2 billion extremely poor people in the world surviving on less than US$1.25 a day. About two-thirds of those people live in rural areas and largely depend on small-scale agriculture.[1] Smallholder farms[2] are typically family owned enterprises producing crops and/or livestock on less than two hectares (5 acres)[3]. Family members provide most of the needed labor and derive their primary means of livelihood from the farm. According to this definition, approx. 525 million smallholder farms exist worldwide, representing 85% of the world's farmers (IFC, 2013), and thought to support a population of approx. 2.2 billion (Murphy 2012).

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[1] IFAD website

[2] The terms "smallholder", "family", "subsistence" or "resource poor" farms are frequently used interchangeably. Small farmers fall into two main categories: farmers who grow food mainly for their own consumption only and rarely have surplus to sell (subsistence) and farmers who produce both for their own consumption as well as for sale (semi commercial). See more detailed segmentation of farmers in Appendices A and B.

[3] There are various ways of defining smallholders, based on land size, employment patterns, etc. Land size of two hectares or less is most commonly used in the development literature and is also consistent with the World Bank's Rural Development Strategy. Since there is no universal definition of "smallholder" farmer, the above paragraph is meant only to illustrate the scale of the problem.

Small farms play an important role in world agriculture (J Braun 2008) accounting for 70 percent of global food production (ETC 2011). With global population on the rise, demand for food is expected to double by 2030 and the agri-food industry will need to feed 9 million people by 2050 (World Bank, 2008). In the meantime arable land available per capita has been declining: from 0.53 hectares per capita available in 1953 to 0.25 in 2000 and an expected 0.18 in 2050. (PWC 2012) To meet demand, therefore, either there must be an increase in land devoted to farming or an increase in efficiency. Globally 1.5 billion hectares of land is used for crop production with another 1.4 billion theoretically available. In practice, however, the areas theoretically available for agricultural production expansion are concentrated in 7 developing countries (4 of them in Sub-Saharan Africa), many of them inaccessible or with terrain unfavorable for agricultural production. (IFC 2012) Alternatively, given current inefficiencies, there are opportunities for improving smallholder productivity by as much as tenfold, through better farming practices and with the use of irrigation, basic technologies and better seeds and inputs.

While the small farm vs. big farm debate is ongoing, evidence is growing about smallholders' competitive advantage in some subsectors (Hazell, et.al.

2014), the nonlinear relationship between land size and productivity (S.M. Helfand, et.al. 2007), and other advantages that small-scale production can offer such as more reliance on labor than capital, working with the existing knowledge and skill base, and public goods like controlling out-migration to cities and improving food security in disadvantaged areas (S. Murphy, 2012).

The importance of agriculture and small producers in particular is also emphasized in the development field. The World Development Report 2008 called for "a new agriculture" of high-value products as an instrument for sustainable development and poverty reduction. The report highlights the importance of "counteracting rapidly mounting anti-smallholder biases in value chains", emphasizing the rise of vertical integration, economies of scale in financing and standards and the importance of supporting smallholders' competitiveness while pointing to aggregation as an important part of the solution (World Bank, 2008).

Unskilled labor-intensive sectors such as agriculture have shown to have the largest contribution to poverty alleviation (Loayza, Raddatz, 2009) with strong evidence that agricultural growth leads to both lower poverty and inequality (Ravallion 2010). In fact agricultural growth leads to income growth

in the lowest three income deciles in developing countries and is typically the primary source of poverty reduction (Cleaver, K. 2012).

Supporting smallholders and agricultural growth therefore has risen to high priority in the development agenda in the last few years after decades of neglect. The United Nations declared 2014 to be the Year of Family Farms to draw attention to their importance in poverty alleviation and sustainable development. The European Commission has been actively supporting small and family farms across the EU for years and is considering even more supportive policies under the current EU presidency. FAO, World Bank, UNDP, UDAID and numerous NGOs, just to mention a few, all have ongoing initiatives in support of smallholders and their inclusion in modern and global value chains. The challenges of linking small producers to international markets are widely documented in the literature and aggregation, in particular cooperatives, is considered as a key solution (FAO 2013).

2.2 Globalization of Agribusiness

Agriculture has gone through two major transformations in the last half century. First, the mainly public-sector-governed green revolution and food system transformation between the 1950s and 80s (Reardon, et.al. 2007) brought about drastic changes in many countries by creating access to agricultural innovations and technology and thus facilitating a productivity boom while reducing the need for labor. Second, globalization, "the process of intensification of cross-area and cross-border social relations between actors from very distant locations, and of growing transnational interdependence of economic and social activities" (Scherer, 2009), reorganized the agri-food sector in fundamental ways since the 1980s. This second transformation involved an unprecedented degree of international division of labor, consolidation and dissemination of innovations, facilitated by the economic policies of this period. Perhaps the greatest innovation was how transnational corporations ("TNCs") linked production into cross-border value adding networks while reducing their direct involvement and engagement in primary production and processing. (Gereffi 1994).

While the concept of supply chain reflects material transfer alone related to a product, value chain track the value created. Value chain "describes the full range of activities that firms and workers perform to bring a product from its conception to end use and beyond. This includes activities such as design, production, marketing, distribution and support to the final consumer. The activities that comprise a value chain can be contained within a single firm or divided among different firms." (globalvaluechains.org, 2011) According to Sturgeon (2010), value chains represent a subset of production networks, the latter being a "much more complex and dynamic set of activities" encompassed by the entire network involved in the process of creating a product.

2.2.1 Global Value Chains

The global agrifood business has become increasingly dominated by global value chains (GVCs)[4]. GVCs account for 80% of global trade and

[4] Agribusiness value chain is defined by UNCTAD as "the suppliers of inputs (seeds, chemicals and machinery), farmers and other agricultural producers and service providers, processors of agricultural goods (such as manufacturers of foods and beverages), trading companies dealing with agricultural commodities, and retailers (such as supermarket chains)."

developing countries' share in global value-added trade have been increasing; from 20% in 1990 to over 40% today (UNCTAD, 2013).

In GVCs TNC lead firms[5] exercise high degree of coordination (Humphrey et.al. 2006) without direct financial exposure or ownership in production, processing, logistics and other key activities in the agrifood value chain. In parallel, TNCs' focus has shifted towards marketing and brand management.

GVCs have a direct economic impact on economic growth, jobs and income. Domestic value added can be considerable in comparison with the size of the domestic economy and can be an important source of economic growth with positive correlation between participation in GVCs and growth rates of GDP per capita (UNCTAD, 2013). GVCs can also offer an important avenue for developing countries to build productive capacity, including through technology dissemination and skill building. However the terms of conditions under which

[5] Lead firm is a company with critical marketing, technological, or financial advantage that permits the company to set the standards or specifications for other GVC participants to follow. (Gereffi, Christensen, 2009)

developing country firms connect to GVCs will greatly influence the extent to which their supports poverty alleviation (K. Fernandez-Stark, 2011).

World trade in agricultural products increased more than three-fold between 1985 and 2005 (FAO). This growth is mainly demand-driven fueled by affluent consumers and retail chains (J Braun 2008) and the move towards year-around demand for horticultural products. A generic agri-food value chain is presented in Figure 1.

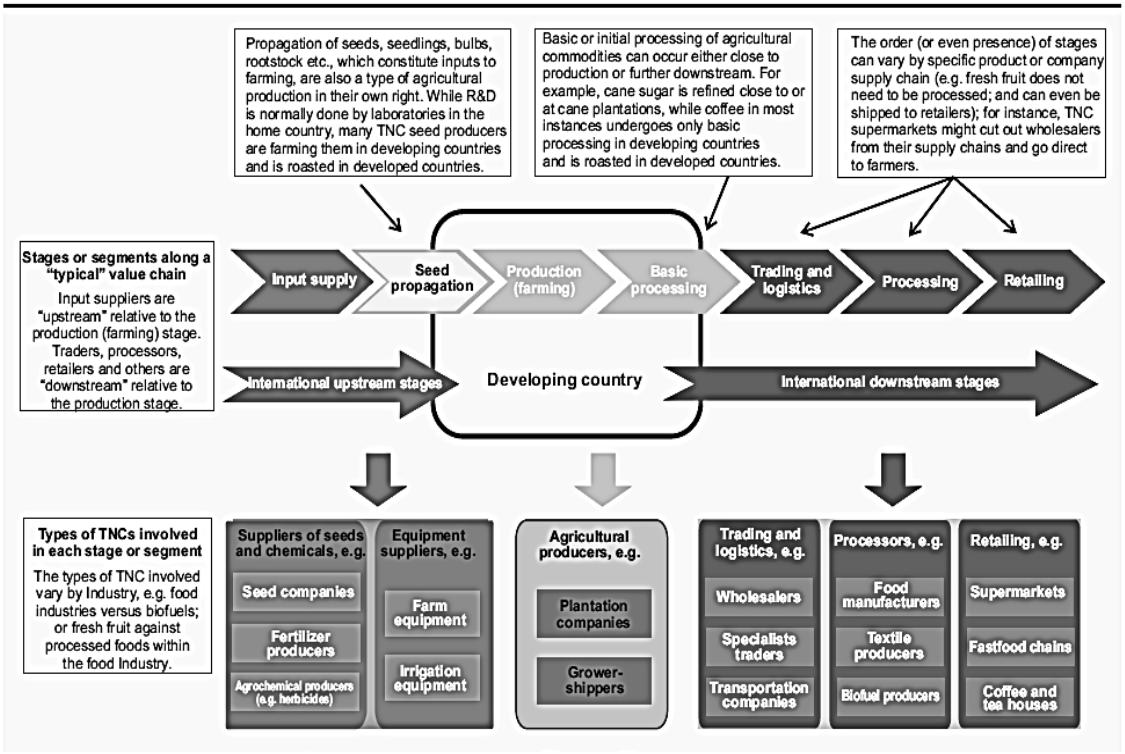

Figure 1: Agri-food value chain

Source: UNCTAD, WIR 2009

This generic agri-food value illustrates the tightly linked activities and processes in making food products available to consumers. It also highlights the typically predominant position of TNCs both upstream, in making agricultural inputs available, and downstream, in trading/logistics, processing and retailing. Developing countries and their enterprises play a role in the value chain mainly in the primary production stage (farming) and in basic processing that typically happens near the production site.

Increasing demand has also been supported by fast urbanization and rising income levels in developing countries. With the liberalization of cross-country investment flows, international retailers have been playing an increasing role in less developed countries, especially with the rapid diffusion of supermarkets[6], often at the expense of traditional markets (Reardon, et. al. 2007, Csaki 2007). (See more about supermarket diffusion in Section 2.3 on Modern Markets.)

The structure of world trade in agricultural goods has changed considerably since the 1980s through a shift away from traditional tropical

[6] For example in Central Eastern Europe, the market share of supermarkets increased from 5 to 50% in less than ten years. (Csaki 2007)

products (coffee, cocoa, tea, sugar, spices, nuts) towards nontraditional agricultural products, especially horticulture (fruits, vegetables and flowers) and seafood (Humphrey, Memedovic, 2006). Developing countries have disproportionately taken advantage of this increasing global demand, with agriculture's share within the economies of many emerging economies increasing (Braun 2008). However, most small farmers have been excluded from these opportunities while the primary beneficiaries have been large agri-food producers and processors strengthened through considerable consolidation in the last 15 years (Reardon et.al. 2008).

While primary agriculture's share in the overall global economy has been declining, it remains significant for many of the least developed countries with agriculture's value added representing between 18-49% of GDP[7]. Once upstream agribusiness and food industries are also considered together these agri-food sectors can account for as much as a third of many even advanced economies (Townsend 2008) with the upstream growth and development benefitting mostly

[7] Source: World Bank Data (http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS)

the advanced industrialized countries of the Northern hemisphere. Packaged foods alone is a $1.4 trillion global industry (ETC 2011).

The key changes that characterize the agri-food sector's past quarter century have been the increasing concentration in the sector, the evolution of buyer-driven value chains and the emergence of standards and specifications to facilitate long distance food trade (Gereffi, et.al. 2005). The following sections will discuss those changes.

2.2.2 Concentration

During the past two decades increasing concentration has been a key characteristic of agribusiness value chains. Post-1970 economic policies, including deregulation and free trade, created a favorable environment for corporate consolidation, which was further supported by the opening of emerging markets. As a result, in 2000, 51 of the world largest economic entities were corporations and only 49 were countries.[8] In other words 51 TNCs exceeded the economic power of three quarters of all countries globally.

[8] http://www.corporations.org/system/top100.html

According to the latest figures (2011), 737 firms account for 80% of the value associated with all transnational corporations (TNCs), linked together in an entangled web of control (ETC Group, 2011). Seventy five percent of these TNCs are financial intermediaries such as banks and insurance companies (ETC Group 2011), leaving less than 200 TNCs in control of the bulk of real sector activities in the global economy.

In the agrifood sector, the top 7 agrochemical companies accounted for 90%, the top 10 animal pharmaceutical companies accounted for 76% and the top 3 seed companies accounted for 53% of global sales (ETC Group 2011), with some of the key agrochemical companies also holding major interests in seed companies, reflecting a general trend towards combined interests in seeds, agrochemicals and pharmaceuticals[9] (Humphrey 2006). Innovation has also become concentrated, for example, in the case of "climate ready" seeds intended to withstand environmental stresses associated with climate change six TNCs and their biotech partners control 77% of issued patents and patent applications (ETC Group 2011).

[9] For example Monsanto, the largest seed company in the world, is also the fourth largest pesticide company and controls more than 27% of the global seed market. (ETC 2011)

Concentration in processing shows a similar picture partly as a result of a wave of mergers and acquisitions in the last few years.[10] While companies headquartered in the United States were responsible for most of the M&A activities, Brazil followed as a close second and most of the acquisitions occurred in emerging markets. As a result, the three largest grain trader/processors and the ten largest animal feed producers in the world account for more than half of their respective markets. The top 100 food and beverage firms accounted for 77% of the global packaged food market, with the top 3 companies, Nestle, PepsiCo and Kraft, representing 17% of that figure in 2009 (ETC 2011).

Consumer outlets have been playing an instrumental role in driving concentration. Grocery retail spending amounted to US$7.18 trillion globally in 2009, exceeding even the size of the global energy sector (ETC 2011). Retail concentration is linked with the fast diffusion of supermarkets around the world, the increasing market shares of super- and hypermarkets as well as the increasing internationalization of large retailers, including mergers and acquisitions in emerging markets (Dicken 2007). An example of the

[10] Year 2009 alone had over a 1,000 mergers in the food and beverage sector valued at $43 billion. (ETC 2011)

concentration effect is reflected in Figure 2. Note that in this example[11] there are only 85 "buying desks", a category that includes the major supermarket groups and distributors sourcing agrifood products, vis-à-vis 1.7 million producers and 278 million consumers. Some in the literature refers to this phenomenon as "choke point", referring to the significant concentration of market power, which further enhanced by the concentration of ownership and market share among the relatively few buying desks.

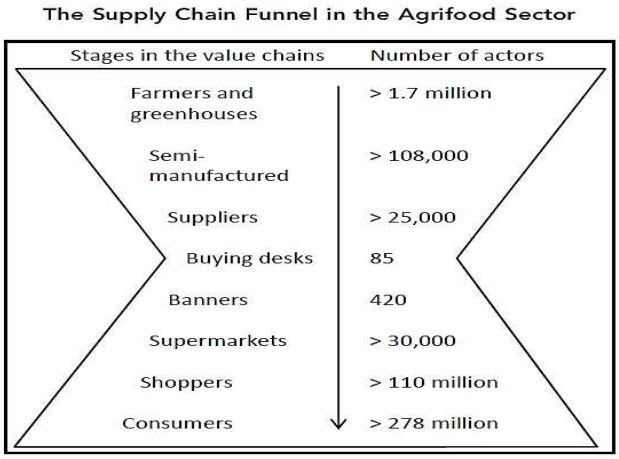

Figure 2. Concentration effect in agri-food value chains

Source: Gereffi, Lee 2012

[11] Figure 2 reflects data from seven Western European countries.

2.2.3 Governance

In the increasingly concentrated agri-food GVCs, lead firms influence the behavior of other value chain actors through their market power, without direct control or ownership in those firms. This is achieved through value chain governance that can take one of several forms: market, modular, relational, captive or hierarchical (Gereffi, et. al. 2005). Market governance involves relatively simple products and transactions and minimal coordination or input from the buyer with price being the main governance mechanism. Modular governance occurs when production takes place to the buyer's specification and codified requirements or standards become the mechanism of efficient coordination. Relational governance involves frequent interactions and information that is not easily transmitted, giving importance to mutual trust and social ties. Captive governance involves many small suppliers that heavily depend on one or few buyers and the operations of the suppliers are heavily influenced by the requirements of the buyers. Hierarchical governance refers to vertical integration, i.e. the lead firm producing in-house (Gereffi, 2005). These GVC governance types are illustrated in Figure 3. It is important to note the differences among the power asymmetry of these governance types that will

determine the negotiating power of value chain actors and ultimately the distribution of rent along the value chain as Milberg (2003) found that profit tends to gravitate to points of concentration in the value chain.

Market and hierarchical governance are the most frequently emphasized in cross-border economic activities the former referring to buying goods from abroad while the latter involving offshore investment in production. However Gereffi's framework highlights the increasing prevalence of "network" type governance structure with considerably less obvious power relations. Network type governance can take the forms of modular, relational and captive. In the modular structure products are usually produced according to a costumer's specifications but producers take full responsibility for the production process and knowledge is internalized in the various production modules, ensuring some degree of power symmetry. Relational governance also has network characteristics but it is based on trust and mutual dependence between the lead firm and the producers and therefore the cost of switching partners tends to be high which helps preserve some power balance. Under the captive governance structure producers have to follow strict requirements and specifications and are under careful monitoring and control by the lead firms due to lead firm concern

regarding producer competency. Switching cost tends to be high for the producers and thus the producers' relationship with the lead firm is characterized by considerably higher power asymmetry than in the other network forms.[12] Captive governance is common in agrifood value chains, in particular when small producers are involved.

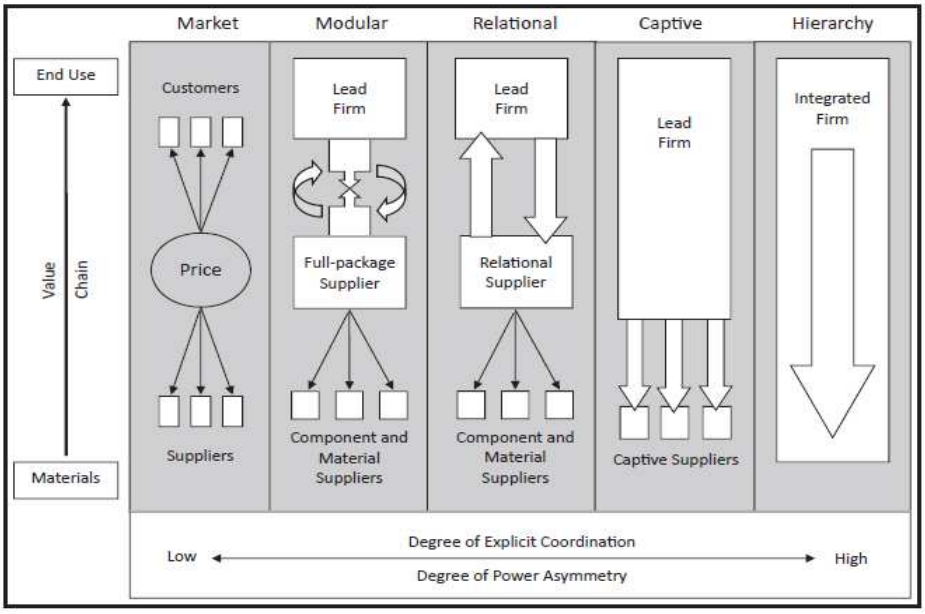

Figure 3. GVC governance types

Source: Gereffi et. al. 2005

[12] http://www.globalvaluechains.org/concepts.html

2.2.4 Private standards and certifications

The requirements and specifications imposed by lead firms are frequently codified in the form of standards and compliance with such standards is documented through certifications. While the use of standards and certifications reduces the transaction cost of regulatory compliance and risk management for lead firms, they can represent a significant barrier to smallholders' GVC participation, especially given the considerable up-front cost involved that disadvantage smaller size producers due to the economies of scale involved.

TNCs have increasingly been focusing their attention on marketing and brand management, as opposed to primary production and processing. It is through their purchasing power and the use of standards and codes of conduct that they govern their value chains and influence the behavior of other entities. Private standards have proliferated along with the transformation of the global agrifood system. These standards are developed by retailers and manufacturers partly for compliance with tightened public food regulations as well as to reduce the costs and risks of increasingly complex value chains (Lee, et.al 2011). Consumer anxiety about food safety also elevated the issue of traceability.

Private standards are also used by lead firms to differentiate themselves and their products. In general, retailers' use of standards tends to be motivated by risk management objectives while manufacturers' use by the aim of differentiation. Both are driven by cost reduction objectives. In addition to lead firms' own standards, several international private standards have also emerged. GlobalGAP[13], for example, set by 13 European retailers, is the leading international voluntary private standard that helps link developing country farmers to international retailers. Accredited certification bodies also certify compliant producers.

Such standards and codes used to be mainly focused on quality, safety and product attributes as well as requirements for suppliers to be in compliance with applicable local laws. In general, the less product specific (as opposed to process specific) the requirements, the less their reach is due to limitations for

[13] Initiated in 1997 by European retailers (EUREPGAP), establishing a code for good agricultural practices' (GAP) which has seen been adopted in over 100 countries around the World (GlobalGap website) and was rename GlobalGAP in 2007. Producers have to fulfil a list of technical, handling and managerial practices to guarantee quality, consistency, hygiene and safety. "Through regular inspections and the use of bar codes, a system of tight coordination is installed that enables entire supply channel information and control. Local producers have to make substantial investments for complying with these rules..." (R. Ruben, et.al. 2006)

monitoring. For example the size and color of a cucumber is easy to regulate throughout the entire value chain as monitoring is reasonably easy at all stages. Regulating permitted pesticides and other credence characteristics that cannot be easily examined becomes more challenging and monitoring will generally involve auditing and/or certification. This led to a shift toward process based standards in global agrifood value chains (Humphrey et.al. 2006). Certification is an instrument that signals compliance with standards.

Figure 4 summarizes how the move towards higher level modern markets lead to more stringent market requirements and necessitates upgrades at the production level. While upgrading into higher value added activities is often a key component of policy strategies to support smallholders, it is clear that standards impose increasing requirements at higher levels of upgrades.

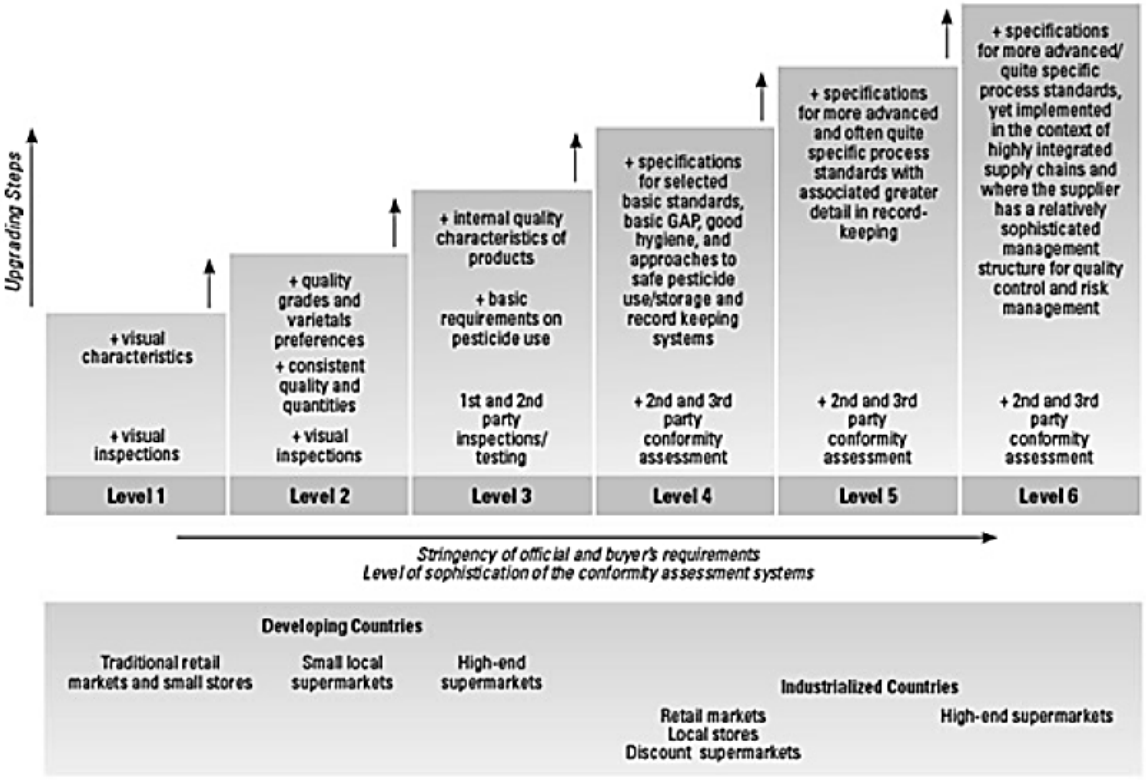

Figure 4. Regulatory and market requirements

Source: Jaffee 2012

2.3 Modern markets

Through standards, GVCs increasingly influence local market dynamics in emerging economies. With foreign ownership of processors and retail outlets in many emerging economies, and with increasing cross-border trade and multi-country distribution practices, local sourcing practices increasingly reflect GVC standards and requirements. Increasingly, too, farmers need to meet those requirements not only if they are trying to export but also if they want to supply domestic modern markets.

The impact of GVCs has been multifaceted when it comes to local markets. Private governance mechanisms used in GVCs have infiltrate into local markets via trade relationships whereby lead firms requirements are being passed on through the supply chain. Local retailers and processors with foreign ownership often adopt standards similar to their parent company, which in turn may be adopted by locally owned firms under competitive and other pressures. For example in Ukraine, producers who wish to sell their products in traditional open air markets are required to obtain a food quality and safety certificate.

Such requirements represent disproportionate burden on small producers. Therefore even though transnational food retailers source an increasing part of

fresh produce from developing countries, a declining percentage of that trade is associated with smaller scale producers (Gibbon, P. 2003).

Supermarkets have experienced rapid growth in emerging markets over the last twenty years, displacing more traditional forms of food retail in many countries. As Table 1 illustrates, in most of East Asia (other than China), Northern-Central Europe and South America supermarkets started spreading in the early 1990s and handled most of food retail by the mid-2000s. The dissemination started slightly later in Mexico, Central America and much of Southeast Asia and Southern-Central Europe but supermarkets nonetheless achieved significant market share by the mid 2000s. Supermarkets are fast gaining market share even in countries in the third wave of the supermarket revolution such as India, China, Vietnam and Russia.

For example in India, despite restrictions on foreign direct investments, the top modern chains had 140-fold sales growth between 2004 and 2012, albeit from a very low level. The rapid growth of modern retail outlets is expected to continue fueled by urbanization, rising incomes, women increasingly working outside the home. In the third wave countries procurement system modernization and the use of standards have become an integral part of

domestic modern retail much faster than observed in the prior waves of supermarket diffusion. The growth of the modern retail sector in these countries have also been supported by considerable domestic investment, especially in India, and by indigenous innovations that allowed supermarkets' penetration into fresh produce markets and rural areas.

Sub-Saharan Africa remains the only region in the world where supermarket diffusion is still limited.

Table 1. Waves of supermarket diffusion

Period	Countries/regions	Growth of supermarket market share
First wave started in early 1990s	Much of South America, East Asia (outside China), Northern-Central Europe and South Africa.	From about 10 percent around 1990 to about 50–60 percent by the mid-2000s
Second wave started in mid- to late 1990s	Mexico, Central America, much of Southeast Asia and Southern-Central Europe	From 5–10 percent in 1990 to 30–50 percent by the mid-2000s
Third wave started in late 1990s and early 2000s	Central and Southern America (Nicaragua, Peru, Bolivia) China, India, Russia, Vietnam	Reached about 2–20 percent by mid-2000s; supermarket sales growing at 30–50 percent a year
Late third wave	Kenya, Zambia, Zimbabwe	Share of supermarkets in large/medium cities is 10-20%, share of produce around 5%, rate of growth is uncertain
Anticipated fourth wave	Mozambique, Tanzania, Uganda, Angola	FDI is just starting

Source: recreated based on Reardon et.al. 2008, revised based on Reardon et.al. 2009

The fast dissemination of supermarkets and supermarkets' emphasis on standards highlights the challenges faced, or soon to be faced, by many smallholders even in their domestic markets.

2.4 Public Policy

Smallholder agriculture is gaining importance in the policy debate for its importance in poverty alleviation, food security, women empowerment, conservation, climate change mitigation and adaptation, among others. However a key challenge for policymakers is designing and implementing effective interventions in these areas. This is especially challenging considering the large number of small farmers that need to be reached in remote areas on one hand and the cross-border interconnectedness of the agri-food sector and global character of many of its influential participants on the other.

According to IFAD (2013), agriculture will require profound changes in the coming years "to fulfill its multiple functions against harsher environmental conditions and demographic and market transformations, … and smallholder agriculture will be at the center of these changes." These anticipated changes position smallholder agriculture at the center of policymakers attention both at the local and international level.

Agriculture is a sector with a history of strong government involvement (including ownership in many countries), subsidies and protectionism, fueled by social and food security concerns (Dicken 2007). In the spirit of the neoliberal

economic policies of the past decades, however, government involvement has been gradually declining (P Hazell et.al., 2007). Even in countries where governments tried to slow the retail market reorganization through regulation, studies have shown that such interventions had neutral or negative impact on the relationship between producers and retailers (Juhasz et al. 2008). Furthermore, shrinking public resources and competing priorities have reduced government ability to directly support disadvantaged social groups. As a result, governments are increasingly seeking market-oriented solutions to social problems. The European Union's Common Agricultural Policy (CAP) demonstrates well the change in policy approach; large scale subsidies are largely a thing of the past and the emphasis is increasingly on enabling producers to survive in the world markets, reducing CAP's share in the EU budget from near 70% in the 1970s to 34% over the 2007-2013 period.

These trends are greatly affected by the decline in nation states' ability to lead and enforce in the increasingly globalized economy with its activities limited to within national boundaries. This is occurring while social and environmental challenges have become increasingly transnational, leading to

what Gereffi and Mayer (2004) calls "governance[14] deficit". The global agri-food sector is governed cross-border, through private governance, via coordination among firms within GVCs and through the use of voluntary standards. With a growing share of the global economy organized into GVCs, the public and private governance institutions that used to promote social upgrading and regulated downgrading have been facing challenges which led to increasing state and societal demand for new governance mechanisms (Barrientos, et.al. 2011). As markets disembed themselves from one set of social control, the state and society try to re-embed them through new modes of governance (Mayer, et.al. 2010), which has led to significant governance innovations of all kind over the last two decades (Barrientos, et.al. 2011). Examples of this phenomenon include government initiated public private partnerships with lead firms that promote social upgrading in GVCs[15] or lead firm initiated environmental and labor

[14] Governance is defined by Mayer and Pickles (2008) as "societal institutions that constrain or enable market actor behavior whether these are at the level of the state, civil society actors, or industrial and business groups involved in changing their supply chain dynamics."

[15] Such as the United Nations Development Program (UNDP) facilitated National Platform for the Responsible Production and Trade of Pineapple in Costa Rica. UNDP facilitates such multi-stakeholder efforts, centered around the lead firms of key global value chains, at the request of, and in close coordination with, the member government.

requirements in supplier codes of conduct in excess of local government requirements.

While public governance has weakened, there are limits to the effectiveness of private governance efforts. Most corporate codes of conduct are vague and most companies do not comply with the standards of third sector or international organizations (Mayer et.al. 2010). Mayer et al. proposed that private governance effectiveness depends on the structure of the GVC involved, the degree to which brand identity is important for a firm's products, the possibilities for collective action to exert pressure on the producer; and the extent to which the lead firm's commercial interest is aligned with social or environmental concerns (Mayer et.al. 2010). Furthermore, Mayer et al predicted increasing role for government, in particular in the form of multi-stakeholder institutions, such as the Costa Rican example mentioned in footnote 19.

It is in the midst of this shift in global governance that national governments, development organizations and NGOs are trying to tackle the problems of rural poverty, effecting billions of people in mostly remote areas. Policymakers and the development community face the critical question of how

to address the changes faced by small farmers whose already fragile livelihoods are being further jeopardized due to changes in agri-food markets.

Policymakers and development organizations such as national governments, OECD, UNDP, ILO, World Bank, USAID as well as NGOs have identified supporting the formation of producer organizations (POs) as central to the strategy for improving the lives of small farmers (WIR 2009). The emphasis by these organizations has been mainly on promoting "marketing cooperatives" to enhance farmers' negotiating power with both suppliers of input as well as buyers and allows the sharing of transaction costs.[16] Such policy initiatives focusing on "making markets work for the poor" involve a shift from government playing a direct role as buyer or seller in markets to providing rules for the creation of effective institutions (Ton, 2008).

Outlining recommended public policy interventions with the goal of promoting farmer collective action for market access, Markelova et al. (2009) of

[16] The UN suggests (UN 2012) that one solution to the decades of neglect of the rural economy is to "encourage farmers to mobilize collectively in agricultural and marketing cooperatives that engage in the production, processing and marketing of agricultural products and give them access to markets".

CGIAR CAPRi[17] emphasize that farmers need rural infrastructure, extension services, credit markets accessible for the poor and access to relevant information in order to compete. In addition, Markelova et al. (2009) recommends that governments create incentives for farmer collective marketing cooperation along with technical and human capacity building programs. Another recommendation was to involve an "enabling facilitator" that facilitates collective action around marketing through the provision of information, technical assistance and capacity building. The enabling facilitator may be the state, NGOs or the private sector as long as it can effectively facilitate farmers' access to services.

Neven, Woolverton and Okello (2012) provided a helpful categorization of the public role in farmer collective action by differentiating the "pull" and "push" models. The traditional role played by governments and donors is referred to as the "push" model, whereby government or donors drive the formation of producer groups and provide most of the management, operational, strategy and marketing guidance, with strong reliance on subsidies and grants

[17] Consultative Group on International Agricultural Research Systemwide Program on Collective Action and Property Rights.

and fixed projects terms. The "push" model's underlying philosophy is to use public resources to demonstrate to farmers the value of producer organization and they will eventually adopt it as their own.

Neven, Woolverton and Okello's "pull" model involves donor or government as facilitator between producers and agribusiness, whereby the donor provides basic support like training which may change over time according to the evolving needs of the farmers. It is primarily the producers and agribusiness (offtakers) that shape the collective action model.

With the above outlined shift in policy towards more market-based solutions as opposed to direct interventions, the challenge is how to improve the workings of the markets for outputs, inputs and financial and other services to address market failures (Hazell et.al. 2010). According to Hazell et al. this challenge calls for more innovation in institutions and in multi-stakeholder collaboration among farmers, the private sector, NGOs and the public sector.

2.5 Aggregation and Producer Organizations: Definitions

There is considerable inconsistency in the literature when it comes to definitions and typology of aggregation and key related concepts. This chapter summarizes those ambiguities and outlines the definitions that will be used in this work.

Schmidt et.al. (2011) define aggregation as "aggregating products from multiple farms." According to Ashoka[18], as small farmers often struggle to sustain income because they lack scale and knowledge, the solutions lie in developing strategies that aggregate information, knowledge, and products in ways that better equip farmers to compete in a fast-changing marketplace. Aggregation for some means producer initiated producer organizations, for others buyer driven contract farming (IFC 2013) and again for others both (Monitor 2012, KIT 2012).

Vorley, et.al. (2012) takes the latter comprehensive approach (See Table 2), focusing on the smallholder aggregation aspect regardless of what value chain entity drives the aggregation. Vorley's typology distinguishes among producer, buyer and intermediary driven aggregation. The predominant form of producer

[18] Ashoka Aggregation Platform Website: http://farming.ashoka.org/aggregation-1.

driven aggregation is cooperatives but Vorley et al. also includes other forms of democratic farmer driven and owned organizations such as informal associations and clusters around lead farms (or "nucleus farms" as later referred to in this paper). Intermediaries can be market actors like traders and wholesalers or support entities like NGOs or government in his typology. While distinguishing intermediary driven aggregation efforts is helpful, it is important to highlight that those usually occur in close collaboration with either the producers or the buyers and therefore intermediary driven aggregation does not exist in a pure form.[19]

[19] For example state mechanisms, depending on the design of the intervention, can be either related to buyer-driven or producer driven. For example Cocobod, Ghana's state-owned marketing monopoly for cocoa or the Kenya Tea Development Agency which by law integrates smallholders, is an example of the state stepping in in a buyer capacity. In the case of the Indian dairy cooperative Amul, the state intervened on the producer side, organizing a multi-tier producer cooperative.

Table 2. Typology of smallholder aggregators acccording to Vorlet, et.al.

Type	Driver	Objective
Producer-driven	Small-scale producers themselves	• New markets • higher market price • stabilize market position
	Large farmers	• Extra supply volumes
Buyer-driven	Processors Exporters Retailers	• Assure supply
Intermediary-driven	Traders, wholesalers and other traditional market actors	• Supply more discerning customers
	NGOs and other support agencies	• 'Make markets work for the poor'
	National and local governments, e.g. via 'Dragon Head' companies in China	• Regional development

Source: Vorlet, et. al. 2012

Another classification used in the literature involves cooperatives vs. "investor owned firms" or "IOFs". Buyer driven aggregation tends to happen via IOFs and producer driven aggregation traditionally has been mostly through cooperatives (or similar producer driven democratic organizations) and therefore the cooperative-IOF typology used to align well with the producer driven-buyer driven dichotomy.

However, examples of IOFs becoming more common among producer-driven models, including as a result of cooperatives changing their legal structure to IOFs, the IOF-cooperative typology offers an additional lens for analyzing aggregators. Conversions from cooperative to IOF have been

increasingly common over the past 20 years (Kispal-Vitai, 2013) coinciding with the era of globalization and increased concentration in the agrifood sector. Some of the existing scholarship focuses on the examination of the financial performance of cooperatives vs. IOFs mostly in industrialized countries, findings showing a mixed picture (PWC, 2012, Fulton et.al. 2001, Lerman et.al. 1990)[20] However important to highlight that the studies that concluded superior, or at least not inferior cooperative performance, were based on data from the 1970 and 80s. More recent studies found superior IOF performance.

Some in the literature (IFC 2012) uses "aggregation" synonymously with contract farming and buyer-driven efforts of sourcing from smallholders in general (buyer-driven efforts almost always take the form of contract farming). This reflects the increasing attention on the role that buyers can play through inclusive sourcing. However, the need to achieve higher level of farmer organization through farmer groups is one of the key constraints frequently highlighted in this context (IFC 2012). This is the case in general for contract farming; contract farming favors larger suppliers or already organized

[20] Author found one study that examined something other than financial performance for cooperatives vs. IOFs/buyer driven aggregator; Basurto et.al. (2013) finds cooperatives to be more conducive to conservation behavior among small scale fisheries.

smallholders (more on that in Section 2.8.1) Nonetheless, if and when buyer-driven aggregation of smallholders occurs, it usually takes the form of contract farming.

Another key concept for this paper, "producer organization" (PO), also has considerable definitional ambiguity in the literature.

Most in the literature consider POs to be a key form of aggregation. However, there is inconsistence when it comes to the meaning of POs.

According to the FAO (2007), POs are non-governmental, membership-based rural organizations of smallholders, family farmers, pastoralists, artisanal fishers and other small entrepreneurs that range from formal groups, such as cooperatives, to looser self-help groupings and associations. This definition represents a subset of Vorlet's "producer driven" category and falls under cooperatives in the cooperative-IOF dichotomy. FAO's definition with its focus on "membership based" organizations and cooperatives is also echoed by many NGOs and other intermediary organizations active in supporting the formation of POs, and often the terms PO and cooperative are used synonymously.

In contrast, the European Commission (EC 2011) defines POs as organizations formed at the initiative of producers but can take any legal form.

Therefore the European Commission PO definition is synonymous with Vorlet's "producer-driven" category irrespective of whether POs take the form of cooperatives or IOFs.

This paper build on both Vorlet's typology as well as on a modified version of the cooperative-IOF distinction, proposing a third, "hybrid" category in addition to cooperatives and IOFs later in this paper. This work will use the European Commission's definition of POs, which permit any legal form as long the organization is producer initiated. This paper considers contract farming a key mechanism in buyer-driven smallholder engagements and one that can help create an incentive for smallholder organization due to the market security it offers, but not necessarily an aggregation mechanism in and of itself. Both cooperatives and contract farming are discussed in depth in sections 2.8.1 and 2.8.2.

2.6 Global Value Chain Actors and Their Motivation for Engaging with Smallholders

What is the motivation for value chain actors to source from smallholders and their aggregators? The objective with this section is to illustrate that there is considerable benefit for GVCs to engage smallholders but lack of smallholder aggregation is a key barrier.

Different stakeholders involved in the agri-food value chain have different considerations for wanting or not wanting to engage with smallholder. The structure of a value chain, in particular the degree of concentration along the chain and the governance characteristics, determine the general conditions faced by smallholders (Lee, Gereffi 2012). In addition, key value chain actors have some motivational considerations that will influence their approach towards smallholder inclusion in the value chain.

Table 3 summarizes the key value chain actors and their considerations for and against sourcing from smallholders'. Consumers, at the bottom of the value chain, are increasingly conscious of ethical consumption and demand inclusive[21] value chain management from brands and retailers. (Poulton et.al. 2010)

[21] "Inclusive" value chain refers to being inclusive of smallholders.

Therefore retailers, processors and manufacturers alike are increasingly looking for ways to achieve inclusive value chain recognition at least on some products and those are used extensively for the purposes of enhancing brand reputation. These are the value chain actors that drive changes via their influence in the value chain governance structures, including shifts in sourcing from smallholders, even though they rarely source from smallholders directly. Finally, traders and wholesalers, the value chain actors that directly enter into transactions with smallholders and their aggregators and therefore bear most of the associated transaction cost and supply chain risk, may be motivated by a number of factors. Smallholders and their aggregators often have more limited marketing options and therefore may be in weaker negotiating position against traders and wholesalers than their competitors. At times smallholders and their aggregators may offer the opportunity for diversification away from other suppliers. In other cases the primary production is dominated by smallholders (such as coffee, cocoa and milk in some countries) and wholesalers and traders have no other option but to find a way to purchase from them. The rest of this section will provide a more in-depth analysis of the value chains actors who create the demand for smallholders and their POs.

Table 3. Summary of motivations for working with smallholders

	IN FAVOR OF	AGAINST
TRADER/WHOLESALER	Higher rent due to information asymmetry and limited farmer/aggregator marketing channels, diversification, no alternative, community considerations	Transaction cost
PROCESSOR/ MANUFACTURER	Brand image, reputation, product differentiation, diversification of sourcing	Transaction cost, supply chain risk
RETAILER	Brand image, reputation, product differentiation, public pressure	Transaction cost, supply chain risk
CONSUMER	Increasing ethical consumption, "feel-good" effect	Higher price tag, traceability

2.6.1 Consumers

Consumers, especially in the global North, have been attaching increasing importance to quality and safety, accompanied by greater willingness to pay for those attributes (Poulton, et.al. 2010). Food safety standards have become increasingly important in global agri-food value chains, progressively pervading

both domestic and international trade, putting smallholders at a competitive disadvantage[22] (Henson, et. al. 2009).

Globalization has unleashed social pressures that demand greater and more effective governance (Gereffi, Mayer 2004) and most of the progress in global retailers' and brands' move towards more socially responsible behavior has come as a response to, or in anticipation of, social pressures (Mayer, Gereffi, 2010). On one hand this trend manifests itself in increasing demand for sustainably produced and fair trade goods[23] and consumers are holding large brand names (including retailers) responsible for environmental and social problems in their value chain. On the other hand increasing social interest and demand for fair trade (and other certified "sustainable" products) also led to cooptation by corporations with considerable economic interest in the increasing demand (Jaffee, 2009). The widespread use of cell phones and social media both

[22] The smallholder disadvantage is two-fold: first, the "cost of maintaining the integrity of its controls" is higher in value chains involving smallholders and second, some of the costs are imposed on the producers whereby smallholders are at a disadvantage absorbing such cost due to their size. (Henson, et. al. 2009)

[23] Fair trade market averaged growth of over 40% (Jaffee et.al., 2009)

in the global North and South have created strong momentum for consumer advocacy and activism for smallholders.

2.6.2 Lead firms: Retailers/processors

From the perspective of lead firms in GVCs, sourcing from smallholders involves increased transaction costs and supply chain risks arising from their small size and the challenges and cost of monitoring compliance with certain requirements. At the same time sourcing from smallholders can have considerable benefits both in terms of sourcing diversification and brand reputation. POs and their services are critical both for reducing transaction cost and mitigating supply chain risks.

Lead firms in GVCs tend to "prefer fewer, larger and more modern suppliers" (Swinnen 2009). Reflecting this trend is the observed "scale-dualism". This involves the exclusion of small farmers in case companies have the option of sourcing from large farmers, a phenomenon that has been documented in several case studies (Reardon et.al. 2009). Small farmers are at a disadvantage because of transaction cost constraints, limited access to information (USDA, 2008) and concerns over noncompliance and contract enforceability (Regoverning Markets

2008, Bakucs et.al. 2007). As an example, the World Bank's "Facilitating the Access of Small-scale Producers to High-Value Market" research program, which included a survey of fruit and vegetable exporters who together accounted for about 88% of Sub-Saharan Africa's trade (outside South Africa), revealed that the number of smallholders that directly supplied the respondent firms significantly declined during the period reviewed (2002-2007).

Nonetheless, many lead firms are increasingly looking for ways to at least partially source from smallholders. For example the above World Bank study found that many exporters refined their procurement system to better accommodate direct sourcing from smallholders, in particular for highly labor-intensive crops (Jaffee, et.al. 2012).

One consideration in favor of sourcing from smallholders is that large producers tend to have several market options and therefore have stronger negotiating position and can pursue alternative sales channels more easily, as case studies found with the tomato value chain in Chile and dairy value chain in Poland. Another consideration is smallholders' competitive advantage with highly labor-intensive crops, which can offset the risks and transactions costs of sourcing from smallholders. This advantage has been illustrated by several case

studies on large Guatemalan exporters who switched from their own production to contract farming with smallholders (Reardon et.al. 2009).

The findings of a survey of modern retailers in Hungary (Kerteszet 8/30/11) illustrate this dichotomy of sourcing from smallholders. The survey found that in the buyer driven fresh fruit and vegetable value chain direct sourcing from small producers[24] by multinational retailers represented less than 5% with a single exception of 15%. Domestic retailers' sourcing rate from small producers was only slightly higher with one outlier at 40%. The survey also revealed that retailers only source directly from small producers when (i) crop involved is of small quantity and value (for example herbs); (ii) crop involved is highly labor intensive and can be best produced on family farms (for example raspberries, mushrooms and salads); (iii) product targets special niche (regional specialties, for example); (iv) there is fragile produce involved where freshness is key. The survey found that retailers' needs were not satisfied in these areas because they could not find enough suppliers who met their requirements. The survey also revealed that retailers try to encourage small producers to join

[24] Direct supplying small producer was defined by retailers as those supplying a value of less than 100,000 Ft (approx. $5,000) per day or less than 10 mio Ft (approx. $200,000) per year.

producer organizations as a way of improving the efficiency of the market and their ability to source from smaller producers via aggregators.

Overall, lead firms have several considerations to evaluate when it comes to the inclusion of smallholders in their supply chain.

With increasingly stringent food security rules and policies, agri-food lead firms need to be able to trace the movement of products in their entire supply chain and need to have systems in place to ensure compliance with rules and policies at every stage of the supply chain. While many of the traceability related obligations are pushed up the value chain by lead firms, lead firms need to be able to monitor compliance. Small farmer often lack the resources and expertise to implement the necessary systems and the more small farmers are involved in the value chain, the more challenging and expensive such monitoring can be. In addition, the cycle of negotiations, contracting, accepting of deliveries, record keeping and book keeping with smaller suppliers adds to the transaction cost of lead firms that is why many avoid direct relationship with smallholders.

Smallholders in the value chain can represent supply chain risks. Due to their small size and often lesser sophistication than their larger counterparts, the

risk of their noncompliance with relevant rules or failure to deliver expected quantities and quality is considered higher than their larger counterparts. Smallholders' size and the inherent diversification within a pool of smallholders suppliers can mitigate some of that risk, however. Relevant PO services can play an important role in institutionalizing that diversification, reducing the above transaction costs and mitigating the supply chain risks.

Sourcing strategy and reputational considerations can further offset the costs of working with smallholders.

With global demand for food increasing, some TNCs face significant constraints when needing to source increasing quantities. Increasing sourcing from smallholders is an obvious strategic option for many TNCs: it helps increase the supply base while achieving even greater increase over time through significant opportunities for smallholder productivity improvement while supporting the diversification of the supply. Danone, for example, recognizing that 80% of the global dairy production is in the hands of smallholders with the potential to increase capacity several-fold with the appropriate animal husbandry techniques, was one of the early movers in the area of proactively developing a smallholder supplier base. Danone's greatest challenge is that over

90% of dairy farmers in less developed countries are not organized into aggregators. Through the Danone Ecosystem Fund, Danone is seeking to support dairy production and to improve living conditions and incomes of small dairy farmers. Danone Ukraine partnered with Heifer (NGO specialized in rural community development) with the aim of creating 20 dairy cooperatives in order to strengthen small dairy producers in regions close to Danone production site. (Danone Ecosystem Fund website). As this example illustrates smallholders can play an important role in some TNCs strategies' for meeting their long term sourcing needs and therefore they are willing to invest in smallholder aggregation and capacity development. [25]

[25] While it is the TNCs' motivation to purchase the smallholders' production in the long run, it can take years before the smallholders are able to produce the quality and attributes required by TNCs. TNCs' usually needs to secure alternative offtake in the interim in order to ensure sufficient incentive for farmers to carry through with their commitment. A good example is the Pepsico supported chickpea production in Ethiopia. Ethiopia is one of the world' leading chickpea producer and Pepsico was looking to secure new supplies for it hummus brand, Sabra. Ethiopian chickpea production is predominantly smallholder based whose production is both highly inefficient and unpredictable. Therefore Pepsico set up a program to help improve the productivity and quality with the aim of sourcing from Ethiopia in the medium term. In the meantime, however, Pepsico Foundation partnered with the World Food Program (WFP) and the United States Agency for International Development (USAID) to set up a factory for manufacture nutrition biscuits for the WFP using chickpeas produced by farmers in the Pepsico initiative.

In addition to the supply strategy and diversification benefits of smallholder engagement, such inclusive value chain strategies are increasingly desired by consumers and are often part of firms' corporate social responsibility strategy and benefit their brand image. Fueled by growing recognition of the slow progress made in the area of rural poverty alleviation, the increasingly difficult conditions faced by smallholder farmers who represent a significant portion of the global poor, and assisted by the fast development in telecommunication technology and social media as well as NGO strategies attempting to raise awareness, TNC agri-food brands and retailers have found themselves at the center of the rural poverty discourse. For example, Oxfam America decided to focus on some of the largest agrifood TNCs after the 2008 food crisis, to explore what impact these companies' supply chains had on farmers who own less than 2 hectares of land. The report (Oxfam, 2013) also investigated the social and environmental policies of the ten largest food and beverage companies and stated in a press release that these companies are "failing millions of people in developing countries who supply land, labor, water and commodities needed to make their products"; not because of exploitation but because of their exclusion. The ratings of the Oxfam report are summarized

in Annex E along with the latest ratings available on the Oxfam website to promote heightened consumers awareness around these issues.[26]

Information technology and social media together with increasing consumer awareness have enhanced brands' reputation risk just as brands have become TNCs' most valuable assets. In addition, reputation risk may also lead to legal risk as informed and activist consumers especially in the global north may pursue legal cases against lead firms and brands as the case of Whole Foods Market Inc. illustrates (see footnote[27]).

Aggregation remains a key constraint for lead firms to take advantage of the opportunities offered by smallholder engagement since sourcing from farmers organized into groups carried considerably lower transaction cost and

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[26] Noteworthy is Oxfam's announcement at the time of the report's release in February 2013 to focus its first campaign on the cocoa value chain and the treatment of female workers, and the subsequently improved performance of Nestle, Mars and Mondelez (owner of Cadbury) on their "Women" score.

[27] In 2011 a judge in Florida allowed a lawsuit by nonprofit Southeast Consumer Alliance to proceed claiming deceptive trade practices based on Whole Foods' sale of organic frozen vegetables from China. The vegetables were grown by a Chinese state owned company that employed prison labor in a highly polluted region where polluted surface water was used for irrigation, while the organic certification was issued by another Chinese state entity.

supply chain risk then sourcing directly from tens if not hundreds of thousands of smallholders.

2.6.3 Traders/Wholesalers

Local traders and wholesalers often take advantage of information asymmetry, smallholders' lack of transportation and lack of access to capital when buying smallholders' products at the lowest possible prices, leading to trader margins as high as 50% in some markets. Most traders and wholesalers are less concerned about CSR and reputational benefits of smallholder engagement for their own behalf but rather at the demand of lead firms. However, some GVCs such as coffee and cocoa (where smallholders are responsible for the majority of global production and therefore buyers have few alternatives for sourcing) have been working closely with smallholders in a manner similar to brands and retailers, in order to help secure stable long-term supply.[28] Mujawamarija et.al. (2013)

[28] Cacao trees grow in a limited geographical zone, of approximately 20 degrees to the north and south of the Equator. (Wikipedia) Ghana and Ivory Coast together account for 60 per cent of the world's cocoa supplies. However, poor returns for farmers and declining productivity due to aging cocoa trees and climate change are threatening cocoa supply whereby the industry is predicting a 1 million tons "cocoa deficit" in 2020 while demand is increasing due to growing global demand for chocolate. (FT) Armajaro, an international cocoa trader, is working with other

observed preference among coffee farmers in Rwanda to sell to local traders rather than cooperatives based on established relationships after repeated transactions of credit and basic consumption items with the traders. Interviews carried out for this work also revealed strong social ties between smallholders and traders that belong to the same community.

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stakeholders with the help of the Gates Foundation to promote farmer aggregation, capacity building and tree rehabilitation. ECOM, a major international coffee trader, has been managing similar programs with the help of capacity building NGO, Hivos. Similarly, ECOM embarked on the Voice of the Coffee Farmer project with the aim of better understanding farmer behavior and preferences and how ECOM can increase volume, improve quality and reduce volatility in its supply chain.

2.7 Smallholder Participation in GVCs, Barriers and Benefits of Participation

GVC participation can have considerable benefits but smallholder farmers face significant barriers when it comes to supplying modern markets.

Modern market participation can increase smallholder income in several ways. Participation in high-quality supply chains increases the potential for surplus to be generated for the producers. Another form of premium may benefit farmers that buyers may agree to pay in order to prevent side-selling especially when contracts are difficult to enforce.[29] Endogenous technology transfer in value chains make productivity improving solutions available to farmers and in turn help increase income. Finally, vertical coordination can help overcome smallholders' constrained access to inputs and better quality inputs lead to better risk management, improved productivity and higher profitability (Swinnen, et.al. 2009). Therefore linking smallholders to modern value chains

[29] In general potential surplus refers to the premium potential of more affluent modern markets and export oriented crops in comparison with crops produced for local and traditional markets. An alternative form of premium relates to what buyers may incorporate in contracts in order to secure the loyalty of producers and prevent side-selling (see Section ? for more detail.)

can be an important element of building their resistance to shocks and improving their productivity and livelihoods (Fan et.al. 2013).

Although small farmers often enjoy quality and productivity advantages, mainly attributed to motivated and flexible family labor (IFC 2012), they are at a disadvantage in most other areas important to meet the needs of modern markets. As Table 4 illustrates, smaller farms are at a disadvantage when it comes to transaction costs related to skilled labor, market and technical knowledge, input purchases, obtaining finance and capital, accessing output markets, compliance with product traceability and quality assurance requirements and risk management.

Table 4. Transaction cost advantages of small vs. large farms

	Small farms	Large farms
Unskilled labor supervision, motivation, *etc.*	√	
Local knowledge	√	
Skilled labor		√
Market knowledge		√
Technical knowledge		√
Inputs purchase		√
Finance and capital		√
Output markets		√
Product traceability and quality assurance		√
Risk management		√

Source: Poulton, et.al. 2010

Unless smallholders can satisfy these modern market requirements they will be excluded from expanding market opportunities, both domestic and international (Kaplinsky, et.al, 2008). The fixed costs of adopting and maintaining compliance with modern market requirements and the related risks can be considerable and thus can disadvantage smaller producers (Ellis and Keane 2008).

When it comes to the barriers to modern market access, the limited existing literature puts primary importance on privately held assets (such as livestock, soil quality, productive technologies, etc.) ahead of institutional and infrastructure deficiencies (Barrett 2008, Boughton et al., in press; Cadot et al.,2006; Minten and Barrett, submitted for publication). Farmers need various forms of technology and inputs to meet modern market requirements such as relevant information, agricultural production technology, information technology, irrigation, fertilizers, herbicides, management, technological and administrative skills. In addition, because selling to these global value chains often does not result in immediate payment, unlike traditional wholesale

markets, access to credit and the ability to manage credit and financial flows become important parts of farming (WIR 2009).

These requirements are challenging for individual smallholders to meet. Compliance with standards usually requires information, financial investment and access to networks (Lee et.al. 2012). The adoption of standards has economies of scale that puts smallholders and a disadvantage. Some studies found that the introduction of standards can discourage smallholders' GVC participation. For example the decline of smallholder participation in the Kenyan green bean industry from 60 to 40% of output is attributed to the introduction of stringent food safety standards (Narrod et.al. 2009).

Some argue that certification, especially for smallholders and their POs, can offer the opportunity for value chain inclusion, which is why many development programs focus on certification (Jaffee et.al. 2012). However certification is often a considerable economic task for smallholders and can be challenging to maintain without external support (Jaffee et,al 2012). In fact the cost of certification can outweigh the benefits for smallholders because auditing and certification have strong economies of scale (IFPRI, 2008).

Modern markets also frequently specify the types of inputs farmers have to use (seeds, fertilizers, etc.) reducing the bargaining power of farmers with their suppliers. Therefore the "danger is that the requirements of global value chain will undermine the cost advantage enjoyed by small farmers and require capabilities that they cannot offer." (Humphrey 2006).

There is considerable variation, however, in the requirements of various value chains, which can significantly influence the benefits of participation for smallholders. Lee and Gereffi (2012) helped make sense of the variations through a classification of different value chain structures, which apply both to global and local value chains. They showed how differences in lead firm and market concentration characteristics lead to different requirements, incentives and implementation capacity and thus variations in outcomes for smallholders. They distinguished between concentrated and fragmented chains on two dimensions – food retail and food production – to create a two-by-two classification as shown in Figure 5.

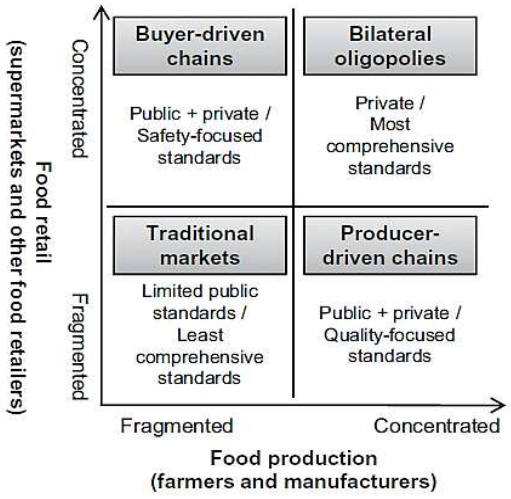

Figure 5. Structure of the agri-food value chain (Source: Lee, et. al. 2012)

Supported by case study evidence, Lee et.al. concluded that buyer driven chains and producer driven chains offer distinct opportunities for smallholders while bilateral oligopolies are the least beneficial to small farmers because of the strict requirements and direct control involved. Traditional markets offer smallholders the greatest autonomy but also the least support for upgrading and improving profitability according to the authors.

Compared to traditional markets, GVC participation generally involves contracts that usually lower market risk but the bargaining position of small farmers tends to be weak considering the large, often multinational, buyers

involved. Accordingly, the share of retail revenues passed down to producers has been declining in many agricultural sectors. For example coffee growers have seen their share of the retail price shrink from about a third in the early 1990s to 10% in 2002, despite a doubling of sales during the same period (WIR 2009).

Contracts, however, do not always reduce market risk. Case study evidence suggests (which was also confirmed by interviews carried out as part of the present work) that in some value chains TNCs breach contracts frequently, especially related to pricing (Regoverning markets, 2008). Prices in those cases are either not set until a few days before delivery (or even past the delivery date) or the price set in the contract is unilaterally modified by the buyers. On the other side, modern market contracts can also be challenging to enforce against smallholders. This is a particularly important problem because of the prevalence of "side-selling" among smallholders.

Side-selling involves the farmer selling crops to a third party in violation of a preexisting contractual obligation with the buyer. Motivation for side-selling typically involves either a market price that is more favorable than the pre-set price or more favorable payment terms, such as immediate payment as

opposed to delayed payment that characterize most modern contracts (Fischer et.al. 2011). Side-selling involves a two-fold problem for buyers. First, it undermines quantity commitments and ability to plan for the buyer to meet its own obligations. Second, side-selling typically involves the highest quality product (that's where farmer can get highest premium compared to contracted price), which in turn deteriorates the average quality of the products sold to the buyer (G. Mujawamariya, et.al. 2013).

Even if opportunities for directly supplying modern markets may arise, meeting modern market buyers' quantity, quality (standards) and product specifications (asset specificity) requirements pose considerable costs and challenges to small farmers (Reardon, et.al. 2005). As a result many small farmers find it difficult not only to become but also to remain suppliers of modern value chains (Poulton et.al. 2010, Reardon, et.al. 2005, Maertens, et.al. 2007).

Due to the above entry barriers, lead firm driven strategies to link large number of smallholders to standards based markets have been more successful than producer initiated bottom-up efforts, as evidenced by a survey of fruit and

vegetable exporters who accounted for 88% of Sub-Saharan Africa's fresh horticulture trade[30] (Jaffee et.al. 2012). Lead firm initiated approaches are driven by the needs of those lead firms and are typically in the form of contract farming schemes.

Another conclusion drawn by the same study was that producer exclusion from some standards driven value chains may be preferable to the high financial risk that accompanies inclusion in those value chains primarily due to the higher investments required.

To overcome some of the challenges associated with modern market access, smallholders may participate in some form of aggregation. In fact production organized based on GVCs and production networks, governed in part through the use of standards, has increased the need for farmers to be organized in order to be included in modern market trade.

[30] Part of the "Facilitating the Access of Small-scale Producers to High-Value Markets" World Bank study.

2.8 Key Aggregation Mechanisms for Smallholder Modern Market Access: Cooperatives vs. Other Forms of Aggregation

Aggregating the production of smallholders can help achieve economies of scale, meet the standards and requirements of modern markets and address other barriers of modern market access (IFAD 2009). It is often encouraged by value chain lead firms for whom the lack of smallholder organization is a key barrier to sourcing from smallholders[31].

Aggregation can take various forms as discussed in Section 2.4. Cooperatives have represented the predominant form of producer driven aggregation and are most widely supported by policymakers. Contract farming, while not necessarily an aggregation mechanism due to its favoring of larger producers and organized smallholders, is the key form of buyer-driven smallholder engagement and thus the mechanism used by Investor Owned Firms (IOFs).

This section of the literature review will focus on contract farming, as the main means of smallholder value chain integration by IOFs, and cooperatives,

[31] Hungarian retail survey results (Kerteszet 8/30/11), conference remarks by Armajaro and ECOM (cocoa and coffee traders) at Rainforest Alliance Sustainable Value Chain Roundtable (2012).

the most common form of producer and third party initiated form of aggregation. The literature on the role of cooperatives vs. IOFs aggregators in smallholder modern market access is very limited. The author could identify only a single work that looks at hybrids of cooperatives and IOFs. Ortmann et.al. 2006 concluded based on evidence from 2 case studies in South Africa that both IOF and cooperative forms of aggregation have considerable strengths and weaknesses and some hybrid form of the two is best positioned to enable smallholders' modern market access[32].

2.8.1 Contract Farming

Contract farming can be defined as a system for the production and supply of agricultural products by producers under advance contracts, the essence of such arrangements being a commitment to provide an agricultural commodity of a type (quality/variety), at a specified time, price, and in specified quantity to a known buyer. The contracts could be of various types ranging from procurement contracts under which only sale/purchase conditions are specified to contracts under which

[32] Other studies comparing IOFs with cooperatives focus mainly on governance and some on productivity considerations.

the contracting firm supplies and manages all the inputs for the farm (including extension services and financing) and the farmer becomes just a supplier of land and labor (Bijman, 2008).

Production based on advance contracts and specifications is becoming increasingly common under GVC conditions. Even the well-established Dutch agricultural auction system is in decline with the shift towards advanced contract based transactions (Sandor, et.al. 2011). Contract farming is also playing an increasing role in many developing countries due to the desire of retailers and manufacturers to establish vertical coordination for control and risk management. While the welfare impact of contract farming continues to be highly contested, multiple studies have demonstrated the positive impact effect of contract farming for smallholders. Bellemare (2012) found 10-16% increase in income and 15% decrease in income volatility among smallholders that participated in contract farming in Madagascar. Wainaina (2012) found a 27% income increase among Kenyan poultry smallholders participating in contract farming. Others have documented welfare gain from participation in contract farming as a result of risk reduction and transaction cost savings (Hennessy 1996; Martin 1997; Gray and Boehlje 2005; Key 2013).

On the negative side, the challenges of contract enforcement and unequal bargaining power between producers and buyers is also widely documented (Kherallah, 2001).

Barrett et.al. (2010) contributed to a more nuanced understanding on the subject by demonstrating the importance of geographic placement effects. They pointed out that farmers might exit or turn down seemingly advantageous contract farming arrangements when they perceive that participating won't resolve or might even aggravate preexisting market failures or introduce new risks. A Nicaraguan example of horticultural producers was documented by Barett et.al. In this example farmers exited their contract farming arrangement with a supermarket while still retaining the income effects of participation thanks to investments in irrigation and other productive technologies and new market relationships.

On one end of the spectrum, the potential power asymmetry combined with the potential for misalignment of incentives increases the risk of farmer exploitation, in addition to the risk of indebtedness in case production problems occur and loss of autonomy (and diversification). On the other end of the spectrum, however, farmers may benefit from stable and long term off-take

arrangements based on solid contracts, as well as access to input financing and technical assistance through contract farming relationships. While smallholders can greatly benefit from some of these structures, especially if it provides access to markets, inputs, technical assistance and financing, "smallholder inclusion in such arrangements is not obvious" (Bijman, 2008) because buyers have been found to prefer contracting with larger producers for transaction cost considerations (Ket, et.al. 1999).

Therefore even though some consider contract farming to be a key form of smallholder aggregation (IFC 2013), and in some cases it certainly may be when it involves sourcing directly from small scale producers, buyers in general tend to favor larger and fewer suppliers and in such cases another form of aggregation becomes necessary in order for smallholders to get access to particular market channels. Bijman (2008) refers to this as the "intermediary model" of contract farming. (A common example would be contract farming via a cooperative.)

2.8.2 Agricultural cooperatives

Cooperatives are the most common form of aggregation in agriculture and are widely supported by domestic and international policy, but they have had mixed track record especially in emerging economies. Agricultural cooperatives[33] have existed since the middle of the 19th century and count as many as 400 million members today. Cooperatives are member-owned businesses that generally operate according to seven international principles with roots in the 19th century and as adopted by the International Co-operative Alliance: (i) voluntary and open membership, (ii) democratic member control, (iii) members' economic participation, (iv) autonomy and independence, (v) education, training and information, (vi) cooperation among cooperatives, (vii) concern for community (Birchall 2004).

Cooperatives have played an important role historically in organizing smallholder farmers and are widely held in great hope to help end poverty, achieve the Millenium Development Goals (UN Background Paper on

[33] This chapter focuses on agricultural cooperatives as opposed to some of the other common forms such as consumer and financial cooperatives. Agricultural cooperatives have three broad categories: marketing (focused on market access on better terms), supply (focused on obtaining inputs on better terms) or service (provides transports, storage, etc. services) cooperatives (Ortmann, et.al. 2007).

Cooperatives, 2012), and as a "key to feeding the world" (FAO). However, while 20-80% of small farmers, depending on the country, are organized into some form of village or self-help group, only 5% of smallholders globally are organized into formal producer organizations, mostly cooperatives (IFC 2013).

The first cooperatives were established in Europe in the 18th and 19th century (see Appendix F for the history of cooperatives and distinct regional characteristics.) However there is evidence that the top 40 non-cooperative[34] agri-food companies in the world have been growing faster than their cooperative counterparts during the period of 2007-2011 while cooperatives also had weaker financial results on average (PWC, 2012). There are one hundred agricultural cooperatives on the list of 300 largest cooperatives globally. Most of these were established over fifty years ago most around the turn of the 20th century. Most are based in Western Europe and the United States, with the exception of one cooperative in China and one in India.

Cooperatives have not always been successful at serving the needs of their members (Kherallah, 2001). In fact despite considerable government and other

[34] Companies organized in legal forms other than cooperatives.

forms of support, cooperatives have not been successful in most less developed countries and cooperatives remain a movement of the advanced countries where most successful cooperatives operate (Frederico, 2005). Under the current globalized agri-food market conditions, most of the cooperatives in less developed countries are not "GVC relevant"; they are unable to do business with the global value chains and local modern chains that increasingly handle global and local food trade because they are too small and/or cannot meet the GVC requirements.

Cooperative principals and how they manifest themselves in practice are important for a better understanding of the advantages and disadvantages of cooperatives as aggregators of smallholders and vehicles of their modern market access favored by many policymakers.

Autonomy and independence. One of the key principles of cooperatives is autonomy. While public assistance of different forms may be needed and welcome on many occasions, as well as governments may be genuinely inclined to support cooperatives as part of social policy, government involvement should be temporary otherwise it can undermine the operation and effectiveness of the cooperative entity or sector it is trying to support (Svendsen and Svendsen).

Nonetheless, motivated by social objectives or the perception of political threat associated with the organizing of the poor segments of society, government intervention remains a reality in many especially developing countries.

Non-governmental third party involvement can also undermine the independence of cooperatives. Such outside promotion of cooperatives common and those outside promoters tend to ascribe their own motives to the members of the cooperative (Harper and Roy, 2000). Gugerty and Kremer (2000) found, in their study of Kenyan community organizations, that developmental assistance may change the social capital dynamics of these organizations. According to Oxfam (2007) cooperatives set up as a result of external involvement are often perceived by the members as means of accessing external support rather than their own initiative, thus altogether undermining the reasons for the cooperative's existence. Therefore ILO's 2002 recommendation on cooperatives highlights the importance of not using cooperatives as "tools" of development in

a top-down approach, but rather support the autonomous bottom-up development of cooperatives through direct support to the members.[35]

Economic participation vs. concern for community. It is common for cooperatives to have a combination of economic and social objectives which needs to be carefully balanced else it can lead to conflict and negatively influence trust and cohesion.

Harper and Roy (2000) in their study of Indian cooperatives found that the majority of cooperative members they surveyed were primarily interested in improving their income. Only 6 of the 21 cooperatives surveyed had the majority of their members expressing the desire to have their cooperative do more for the group than just increase income. In the case of the rest of the cooperatives, the majority wanted the cooperative to focus only on financial benefits. Harper and Roy also found that the more poor the members were, the less they were interested in nonfinancial benefits from the cooperative. Vorley et.al (2012) had similar findings and quotes a representative of Peru's Junta

[35] The (ILO) recommendations for the promotion of cooperatives (2002) are based on guidelines issued by the United Nations in 2001 and call for a supportive policy framework for cooperative development while also emphasizing the importance of cooperative autonomy and advocating against governmental intervention.

Nacional de Café saying "No one delivers the product simply for love of the cooperative; we deliver the product to the extent that the cooperative can give a better value proposition to the member in terms of prices and additional services".

Even though "many would be organizers of co-operatives attributed their failure to the peasants' stubborn refusal to understand the great advantages to cooperation ……. and to the lack of mutual trust" (Frederico 2005), the classic case study of Irish butter cooperatives by O'Grada illustrated that the decline of those cooperatives had more to do with farmers' assessment of profitability and economic conditions as opposed to their "individualism and conservatism" as previously thought (Frederico 2005).

Farmer income improvement may be associated with various cooperative activities, including shared equipment use, training and services. For different value chains the potential for income enhancing cooperative activities as well as the relative value added of activities may differ. For example dairy cooperatives have done reasonable well compared to others due to the opportunity to share costly equipment necessary for preserving the quality of the milk and for higher value added activities. In fact the first cooperative ever was a dairy cooperative

in Denmark that made butter (Frederico, 2005) and several cooperative success stories are in the dairy sector, including Amul in India and Heifer International's more recent efforts (see more details later).

Harper and Roy (2000) nonetheless found that "both income only and broader motivation can be associated with success." In fact all the 5 cooperatives which failed in their sample were mainly income oriented. The authors concluded that "it may be that when circumstances become difficult, social objectives provide some "glue" which keeps the group together in hard times."

One interesting approach to combining financial and social/environmental objectives is illustrated by the example of Heifer International[36]. Heifer International is an NGO that works with small farmers and has successfully promoted cooperative formation and the ownership of life stock that support both food security and livelihoods. Organizing into cooperatives can help smallholders with obtaining access to much needed chillers (without which the bacteria count of the milk is unacceptable for most processors and modern value chains). Heifer developed a "chilling hub" based engagement model,

[36] Heifer International is a US based NGO with the mission of "working with communities to end poverty and hunger and to care for the Earth."

recognizing the importance of chiller access for farmers. Various income enhancing services and value chain partners are all linked to the chilling hub, including quality testing, financing, extension and veterinary services, input and feed supply, transportation services, etc. along with more socially oriented activities such as education regarding improved hygiene, water and sanitation, nutrition, environmentally sustainable agricultural services and resource management, among others.

Cooperation among cooperatives. Bush and Simi (2001) found farmers from different countries of the EU were three times more likely to protest against each other than they were to work against shared antagonists. Nonetheless, the few examples of cooperation they identified were all framed against a shared protagonist, globalization and/or multinational corporations. McClintock observed that farmers considered those outside their own cooperative as potential competitors.

Democratic control. Democratic control is one of the key cooperative principles. Oxfam's experience with cooperatives suggests, however, that participatory management is feasible only in the case of new or small cooperatives. As the cooperative grows and the number of members increases,

however, the democratic decision making system become increasingly impractical. In fact many cooperatives end up appointing a board, which in turn appoints full time management. Management in those cases is often professional and not from among the membership, for several reasons: first, as the cooperative grows, it is increasingly difficult for members to manage the cooperative as well as their own private production; second, cooperative members often lack the necessary business and management skill; and third, membership based committees of elected leaders tend to be slow and bureaucratic in their decision making and thus jeopardizes the success of the cooperative (Oxfam 2007).

However, a sense of ownership and trust of the leadership is critical for cooperatives to function effectively, which creates a challenging dichotomy for cooperatives. The challenge is especially great since professional leadership tends to lead to conflicts over distribution (Oxfam 2007). Professional managements usually tries to retain as much of the cooperative's earnings as possible for investments or reserves, while the membership tend to prefer distribution to the members, especially if they do not fully trust the management (Oxfam 2007). In return, these conflicts further undermine the membership's

trust in management. Harper and Roy in fact found that most of the cooperatives in their Indian sample did not have participatory management and that the more simple the cooperative's operation was the more likely participatory management was used.

Corporatization. Rosa Luxemburg pointed out 100 years ago that cooperatives are destined to either disappear, in case they do not succeed economically, or to otherwise "corporatize" and become like capitalist profit oriented entities. She portrayed cooperatives as conflicted organizations: trying to maintain a "socialist" system of production while being subjected to economies built on capitalist exchange. Since, according to Luxemburg, exchange dominates production in capitalism due to competition, the cooperative will either adopt the capitalist principals also in its production or let the social considerations of its members prevail, in the latter case, however, it is destined to fail economically. Szabo's (2013) recent findings are consistent with the above theory as he found that some cooperatives convert to corporate form or establish subsidiaries in corporate form as they grow and their operations become more complex. Skurnik and Vihriala asserted that while homogeneity is a key determinant of the cost of collective action, cooperative decision makers by

nature are less homogeneous than corporate ones, given that sole concern of the investors in the latter is the maximization of the value of their investment. Maintaining sufficient alignment of owner interest is a key reason for cooperatives to constrain their activities to a narrow line of business. They also suggested that cooperatives find it difficult to cope with change as that causes tension among members and the risk that preferences might diverge.

Despite the above challenges with cooperatives, there are some very successful examples of agricultural cooperatives that managed to grow to significant size and command considerable market shares in their respective markets. Some of the most frequently referenced include the Danish and Dutch cooperatives, the dairy cooperatives of India and the Almerian cooperatives in Spain. It is important to highlight, however, that most of these success stories, in particular the timing of their significant growth, pre-dates the era of globalization and the dominance of global value chains. Furthermore, some of the successfully scaled cooperatives benefitted from very specific and unique socioeconomic dynamics that encouraged membership and enabled growth.

The successful growth of Dutch cooperatives was originally organized along Catholic-Protestant religious lines and both groups supporting and

building organizations of their own in competition with one another (KIT, 2010), helping offset the tendency of diluting social cohesion that generally occurs with the growth of collective action based organizations.

The beginnings of the Almerian cooperative[37] dates back to Franco's dictatorial regime and its "development" efforts in the 50's and 60's and its exploitive arrangement aimed at increasing agricultural production in the area. Frustrated by lack of transparency and stymied opportunities for growth, Almerian farmers formed the credit co-operative Caja Rural Provincial de Almería in 1963 (now "Cajamar"). Cajamar provided financing to farmers as well as acted as a catalyst in building organizational strength. This was at least in part driven by Cajamar's initially mainly unsecured lending and thus crucial interest in making sure that the co-operatives were doing well and their activities were worth financing (Vattamany 2009).

Amul is the largest Indian dairy company, owned by Gujarat Cooperative Milk Marketing Federation, with revenues in excess of US$3 billion. Amul began in 1946 when dairy farmers in India's Kaira district went on strike to protest

[37] With 13,500 small farmers of average landholding of 1.5 hectares.

middlemen and corrupt bureaucrats. The Amul brand and its cooperative model formed in the years that followed and evolved into a 3 tier federated structure. India's federal government eventually rolled out the privatized model in other states. The Indian government was heavily involved with cooperatives and in fact in 1947 cooperatives became an integral part of the government's five year plans. The government also played a key role in promoting consolidation in the cooperative sector (Munshi, N. 2012).

Several studies have documented the challenges faced by more recently established cooperatives of smallholders in attracting and retaining members in order to achieve the necessary growth to do business with modern markets. Salifu, et.al. (2010) found that in Ghana the most of the cooperatives are fairly homogeneous (including from gender perspective) and remain small with less than 70 members. These authors also found that similarly to other Sub-Saharan African countries (Francesconi, et. al. 2008), the primary reason behind the creation of the cooperatives and farmers' decision to participate was to gain access to governmental or NGO external support ("invasive external governance"). In a South African study (Van der Walt 2005), the author found that 65% of registered cooperatives were not operational and 50% of survey

respondents indicated that the services provided to members were inadequate. Ortmann et.al. (2007) found that several large cooperatives had converted to become "investor owned firms" and conversions were related to the "member-shareholder conflict": farmers may receive good service from their cooperative as members but poor return on their capital. Mujawamariya, et. al. (2013) observed limited loyalty and commitment to cooperatives among Rwandan coffee farmer along with what they refer to as "double side-selling": coffee farmers selling to local traders instead of the cooperatives and cooperatives purchasing from non-members.

Therefore it is key to understand what benefits farmers gain from PO participation what factors might influence PO participation.

2.9 Experience with Producer Participation in Aggregation

While 20-80% of small farmers, depending on the country, participate in some form of village or self-help group (IFC 2013), most of these groups operate informally trying to address rural communities' basic needs (Krishna 2002) such as health, nutrition, clean water and sanitation.

Agricultural production oriented producer organizations, especially those that operate formally, are less common. Only about 14% of Asian farmers, 16% of European farmers, 19% of Latin American farmers and 7% of African farmers are members of producer organizations, including formal and informal, many of which are small and have very low capacity (IFC, 2013). The low level of farmer participation in formal producer organizations is a puzzle in the development field[38], especially given the considerable support for such participation provided

[38] As an example, a survey of Hungarian farmers (Horvath, 2010) revealed that over 90% of the farmer believed that cooperation among producers was necessary and important, especially for better marketing opportunities (80% of respondents), to take advantage of support that may be available (39%) and to improve production methods and conditions (31%). Nonetheless, only 16% of respondents participated in some form of producer cooperation, which included informal clubs in addition to formal producer organizations.

by international organizations, governments, and non-governmental organizations.

This puzzle of low participation in producer organizations has been getting increasing attention among scholars and practitioners alike. This appears to be especially of concern since farmer aggregation is a key mechanism to enable agri-food companies to source from smaller producers, for vendors to market their products to them, for technical assistance providers to transfer know-how and agricultural best practices to them and for NGOs to reach them with various forms of assistance.

2.10 PO Formation and Initial Farmer Participation

Markelova et al. (2009) describe three factors necessary for the formation and functioning of farmer groups from the perspective of modern market access: type of market/product; group characteristics and institutional arrangements. The type of market and product determines the extent to which group participation can be beneficial. As far as group dynamics are concerned, according to Markelova, et al. (2009), smaller groups have stronger cohesion since members are easier to monitor but groups' internal composition also play an important role with homogeneous groups (in terms of socioeconomics, values, etc.) having been shown to be more stable and effective, while past experience working together and experienced leaders further increase the likelihood of success. Finally, in terms of institutional arrangements, simple rules, accountability and enforcement mechanism, crafted or adapted by groups members themselves, all help contribute to farmer groups' effectiveness.

Factors that have been shown to influence farmer willingness to participate in POs include up-front fees, transaction costs of dealing with POs (including cost of transportation and of transitioning into the formal sector),

group size, price received and payment terms (Fischer et.al 2011, Bakucs, et.al.,2007).

Dalberg (2012) found based on interviews carried out with global commodity buyers that farmers do not participate in POs for one or more of the following reasons[39]:

- POs provide poor services
- Insufficient access to resources
- Smallholders and women are excluded from POs
- Weak governance and leadership
- Historically state intervened in POs for political gain

A large scale survey (Bernard et.al. 2010) of Ethiopian farmers revealed that 59% of nonparticipants did not think the effort or fee required for PO participation was worth the expected benefits. Over 30% of respondents were interested in PO participation but PO entry rules discriminated against them due

[39] Please note that Dahlberg's interviews focused on the coffee value chain in Peru, cocoa in Indonesia, dairy in Colombia, maize in Kenya and rice in Nigeria, and global conclusions were extrapolated from those findings. However, the list of barriers to aggregate is likely to be biased by the experiences in those 5 countries.

to their small size. PO exclusion of the poorest (which in turn are often the ones with smallest production) was also observed in other studies.

Dudas (2009) found in a survey of Hungarian farmers that the most important motivation in farmers' decision to join a PO was security of the off-take followed by a reduction in production risk and collective input purchase. Other studies confirmed the same finding showing that the primary motivation for PO participation was the desire for risk mitigation, which included primarily market risk but can also include others forms of risk mitigations (for example weather) via various services that the POs can offer.

Access to modern markets also requires shifting to the formal sector from the informal sector, where most smallholders operate[40]. The informal economy has been growing and it represents nearly 40% of the GDP of developing countries. The increase of informal economic activities is attributed to increased

[40]A World Bank study of 162 countries for the period of 1999-2007 (Schneider, Buehn, Montenegro, 2010) used the following definition for the informal sector. "The shadow economy includes all market-based legal production of goods and services that are deliberately concealed from public authorities for any of the following reasons: (1) to avoid payment of income, value added or other taxes, (2) to avoid payment of social security contributions, (3) to avoid having to meet certain legal labor market standards, such as minimum wages, maximum working hours, safety standards, etc., and (4) to avoid complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms."

tax burden, labor market regulations, quality of public goods and services and the state of the formal economy (Schneider, Buehn, Montenegro, 2010). The implication for smallholders, most of whom traditionally operate in the informal economy, is that the shift from the informal to the formal sector can be a difficult one, which was confirmed by the interviews carried out for this study. This can represent a serious challenge for smallholders with considerable financial implications. The author of this research has not been able to identify any studies that quantify the impact of transition from the informal to the formal market.

2.11 Farmers' Continued PO Participation

Studies about farmers' continued participation in aggregation mechanisms falls into two main strands. First, those focusing on the collective action aspects of farmer participation and the role of trust in enabling collective action. Second, scholarship that emphasizes the costs and benefits of participation in farmers' decision-making process.

2.11.1 Collective action, social capital, trust and collective identity

This section will review the concepts of collective action, social capital, trust and collective identity, in particular in how they are applied to farmers' POs.

There is a wealth of literature on collective action, social capital, collective identity and trust and this literature review will not attempt to provide a comprehensive review but rather focus on the application of these concepts in the existing literature to smallholders and their participation in aggregation mechanisms.

Collective action is an important strategy for increasing small producer participation in modern markets (Vorley et al. 2008). However, very little attention has been given to the factors that shape the commitment and contribution of farmers towards achieving a shared goal. (Fischer et al. 2011)

"Collective action occurs when more than one individual is required to contribute to an effort in order to achieve an outcome." (Ostrom 2004). Scholarship related to natural resource management has highlighted the importance of collective action, "voluntary action by a group to pursue shared objectives", and despite the differences between natural resource management and smallholder market access, the collective action framework is applied to the latter because of the importance of cooperation for creating sustainable livelihood options. In fact scholarship on smallholder market access has been increasingly using the collective action framework (Markelova et al. 2009, Smith Lourenzani et al. 2009 , Fischer et al. 2011) and the promotion of farmer collective action has gained popularity for supporting smallholder market access as a response to transformation of the agri-food system and emergence of GVCs. (Narrod et al. 2009)

"Social capital refers to the norms and networks that enable collective action".[41] According to Putnam (2001), the central idea of social capital is that networks and the norms of reciprocity associated with them, have value. Ostrom (2007) goes a step further in articulating not only that social capital consists of networks, but also highlighting trustworthiness and institutions leading to trust as elements of social capital which together enable collective action. In other words social capital contribute to collective action through enhanced trust, trust being the core link. Krishna (2002) suggests that while social capital may predispose individuals to cooperate and social networks can facilitate cooperation, certain types of actions, especially those that require the engagement of the external environment, also require the mediation of issue specific agencies. According to Krishna (2002) "social capital is an asset that remains latent until agents activate this stock and use it to produce a flow of benefits." Such agency is needed in particular when "middle level institutions", such as unions, interest groups, etc., are weak, a common problem in developing

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[41] World Bank; http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTTSOCIALCAPITAL/0,,print:Y~isCURL:Y~contentMDK:20642703~menuPK:401023~pagePK:148956~piPK:216618~theSitePK:401015,00.html

countries. (Krishna 2002) In addition, according to Mayer (2014), a fundamental obstacle facing those who are trying to move a community to act collectively is the construction of a common interest.

Various forms of social capital contribute to successful collective action by increasing trust. Trust increases when the people involved are trustworthy and are networked with each other (Ostrom, et.al. 2007). However it has also been shown that cooperation can be sustained in large networks where individuals do not have regular face to face contact via the bridging form of social capital, especially when it is combined with the bonding form that relies on interpersonal relationships. (Krishna 2002) Furthermore, institutions may create rules that incentivizes trustworthy behavior by establishing rewards and punishments and thus have the ability to enhance trust. (Ostrom, et.al. 2007).

When it comes to agricultural POs, a form of institution, it is through collective action, through PO participation and the collective use of facilities, equipment and services that farmers can maximize the collective benefits gained from small-scale farming. (Markelova et al, 2009) But social capital can be fragile in POs (Svendsen 2004). Case studies from around the world attribute the success of some cooperatives to the presence of trust and social capital. (Szabo

2009, Wambugu 2009, Chloupkova 2003) For example Fischer et.al. (2011) studied the intensity of smallholder banana producers' PO participation in Kenya and found that PO size has a negative influence on the quantity members sell to the PO, which they attribute to the weakening of social ties and increasing monitoring challenges (and thus risk of side-selling) as POs grow.

An FAO policy brief found that decline in social capital hinders farmer groups in Africa and agriculture (FAO, 2010). Some NGOs, such as BRAC and Heifer International, has used various techniques to foster social capital when promoting the establishment of producer organizations.[42] Nilsson et.al. (2012) attribute the transformation of many traditional cooperatives over the last 20 years to the weakening trust of cooperative members in each other and in the cooperative with increasing vertical and horizontal integration.

The existing literature on POs offer several insights on the role of trust. First, trust and collective action tends to work better in smaller groups in general (Olson 1965, Ostrom 2007), representing an additional challenge when POs

[42] An example is Heifer international's "Passing on the Gift" program. Heifer helps individuals and families by gifting them livestock and agricultural inputs and by providing training on livestock management. Once those Heifer recipients rear the next generation of livestock, they ceremonially gift one of the livestocks to another family in need. Thus the original gift recipient becomes a donor, offering great dignity and pride and supporting social capital.

attempt to grow, which is essential in most cases for their ability to access modern markets. Trust is key for coordination and control in farmer organizations (Borgen 2000) and low farmer organization rate is often attributed to the lack of trust and social cohesion among farmers (FAO/CAPRI 2007, Hellin et. al. 2009, Markelova 2009, Blandon et. al. 2009, Regoverning Markets 2008, Fischer et.al. 2011).[43] According to Borgen (2001), in the case of cooperatives, conditions for interpersonal trust-building are no longer in place as cooperatives grow, especially with increased heterogeneity and information asymmetry. Borgen's study of Norwegian cooperatives highlighted that "trust is demanding to build but can easily vanish". He also emphasized that the "conditions for trust-making" are much more demanding in large scale organizations with heterogeneous mix of members, locations and preferences. In the meantime maintaining farmers' trust of the organization is increasingly important because of the asymmetry between farmers and the organization in terms of access to information. Schulze et. al. (2008) studies small supplier commitment from the

[43] For example, low levels of farmer participation in POs in Central Eastern Europe is in part attributed to the legacy of forced collectivization during the communist era and the low degree of trust and social capital in most farming communities (Regoverning markets 2008, Torok 2009).

perspective of cooperative buyers in the German dairy sector, prompted by concern over the large number of farmer contract cancellations and violations.[44] Based on a farmer survey the authors concluded that trust played the most important role in farmer commitment, more important than satisfaction, including satisfaction with the price paid by the buyer. One of the authors' key recommendations was to invest in trust-building activities even if that will involve short term sacrifices in the price offered.

Collective identity refers to unique group characteristics based on shared meanings, experiences and expectations around which group members coalesce (Mosimane et al. 2012). Collective identity is a widely used concept especially in the social scientific studies of social movements involving gender, multiculturalism, sexuality, ethnicity and nationalism, among others. Polletta et.al. (2001) defined collective identity as "an individual's cognitive, moral, and emotional connections to the broader community, category, practice or institution. It is a perception of a shared status or relation, which may be imagined rather than experienced directly, and is distinct from personal

[44] The examples mentioned in the paper all involved cooperative buyers, including Campina and Nordmilch. The German subsidiary of Campina list 500 of its 2,100 dairy farmer suppliers over the period studied. (Schulze 2008)

identities, although it may form part of a personal identity. The collective identity may have been first constructed by outsiders, …, but it depends on some acceptance by those to whom it is applied. Collective identities are expressed in cultural materials – names, narratives, symbols, verbal styles, rituals, clothing and so on – but not all cultural materials express collective identities… And unlike ideology, collective identity carries with it positive feelings for other members of the group". Mayer (2014) highlights the importance of collective identity for collective action. He suggests that narrative is the essential human tool for collective action that helps construct a shared purpose and affirms identity. According to Zurcher et.al. (1981), the staying power of collective identity depends on members' commitment, the extent to which individuals' interest and world view becomes linked to the requirements and goals of the collective. According to Blumer (1939), collective identity formulation should involve both informal interactions and the organizations of formal ceremonies and rituals. The majority of the collective identity related social movement literature has been conceptual rather than empirical and most of the latter have been in the form of case studies. (Hunt, et.al. 2004)

"Collective identity is considered as both a necessary precursor and product of movement collective action". (Hunt et.al. 2004) Klandersman, et.al. (2002) demonstrated this empirically. Studying Dutch and Spanish farmer protest activities they found that a sense of collective identity stimulated a sense of preparedness, which led to protest participation, which in turn reinforced the collective identity. A. Desmarais (2010) had consistent findings in a study of Via Campesina, the international peasant movement advocating family farm based sustainable agriculture and food sovereignty, showing that protest activities were driven by strong collective identity.

The application of the "collective identity" concept in other areas have been more limited with almost no use of the concept in the literature about smallholder aggregation and producer organizations.

Some studies found the importance of collective identity in the management of common pool resources. (Wade 1986, Mosimane et al. 2012) As far as POs are concerned, Bijman, et.al. (2008) suggests that all POs are characterized by two principals: utility and identity. "Utility" refers to participation in the PO being useful to farmers. Identity, according to the

authors, refers to PO participants sharing a common history, geographical space and vision of the future for "themselves and for the group", which in turn support continued cooperation. Bijman et.al.'s interpretation of PO identity is thus passive, considered a given once a PO is formed.

The author of this paper was only able to identify a single study on the application of the concept of collective identity to farmer aggregation. Borgen (2001) found in his study of Norwegian cooperatives that identification based trust plays an important role in maintaining member commitment in modern, large-scale cooperatives, in particular as group cohesion and trust weakens in growing organizations.

2.11.2 Costs and Benefits of Aggregation for Farmers

Collective marketing via aggregation improves the likelihood of being able to access modern markets otherwise unattainable for individual farmers, including in many cases higher value export markets (Markelova, et.al. 2009). Aggregation can provide information, knowledge, assets and services that would otherwise be unavailable to individual farmers. However, participation comes at

a cost in terms of investments that need to be made, transaction costs of working via an aggregator, and the cost of operating in the formal sector rather than in the informal sector (Vorley et.al. 2012). A key determinant as to whether farmers decide to participate in POs is whether they expected to receive net benefits from their participation.

There is limited empirical evidence as to whether farmers experience income or livelihood improvement as a result of participating in an aggregation mechanism and that evidence is rather mixed. The only large-scale study the author of this paper is aware of looked at POs across the EU and found that "On average, producers in the regions with very high organization rates have higher income than those in regions with low organization rates, but the results are not as clear in regions with a medium organization rate. " (Agrosynergie, 2008).

A survey of Ethiopian farmers found that PO participants achieved 7-9% higher prices for their crop than non-PO participants (Bernard et.al, 2010). However farmers raised the cost of participation as a major concern and the study did not quantify those costs. Nonetheless, it is probably fair to assume that continued participation by the majority of the farmers was evidence that they enjoyed net gains. The authors pointed out, however, that the smallest farmers

self-excluded from participating because their returns from membership were lower than their costs.

Nevertheless, there are numerous successful examples of farmer collective action and sustainable PO operations. Narrod et.al. (2009) documented the cases of successful farmer collective action in the Kenyan green bean industry and in the case of the Indian Mahagrapes[45], both accessing high value export markets. Both cases involved cooperatives with considerable buyer as well as government and/or third party (NGO or donor) involvement that helped reduce the cost of PO services, consistent with the conclusions of the Monitor study. Please see section 2.8.2 on cooperatives for additional examples of successful POs documented in the literature.

The Monitor Group examined several smallholder farmer aggregation models in Sub-Saharan Africa as part of the "Market Based Solutions to Poverty in Africa Project (2012)".[46] Monitor found that each of the aggregator models they

[45] Maharagrapes is a marketing firm associated with several cooperatives of grape producers.

[46] The models included (i)agro-dealers that purchase smallholder output and/or provide transportation services to smallholders; (ii) grain handling and storage operations that offers warehousing, trade and marketing services to smallholders; (iii) an NGO owned marketing firm that acts as buyer and broker for cash and staple crops and provides market access to

analyzed achieved significant income enhancement for participating farmers. However no model succeeded without the involvement of or stable access to a strong buyer. Monitor also found that the aggregator models could be financially sustainable, albeit their margins were very thin and volatile. The study made a key observation for the field: farmers enjoyed increased net benefit from participation with additional value-added services received from the aggregators, however such additional services did not improve aggregators' profitability. This finding suggests that aggregators may have to carefully chose the services they offer in order to maintain or grow farmer participation (for which services are essential in order to ensure net benefit to farmers) on one hand and keep services to a minimum on the other in order to minimize the aggregator's own costs.

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smallholders; (iv) industrial maze aggregator that provides inputs as well as advisory services to small farmers and guarantees a market for their products.

2.12 PO Services

The previous section highlighted the great importance of services provided both for the aggregator's operation as well as for net farmer benefit from PO participation as PO services can help smallholders overcome some of the barriers of entry to accessing modern markets. Indicating the importance of services, one of three criteria for the EU to grant PO status to an aggregator is that it has to "prove its utility by the scope and efficiency of the services offered to members."[47] However aggregators' mixed incentives in providing services to farmers, on one hand helping ensure farmer participation, on the other wanting to minimize related expenses in a line of business already characterized by very thin and volatile margins, highlights the need to better understand what services may be most important for POs to provide.

Because of the primary importance of privately held assets (such as livestock, soil quality, productive technologies, etc.) when it comes to barriers to modern market access (Barrett 2008, Boughton et al., in press; Cadot et al.,2006; Minten and Barrett, submitted for publication), most POs attempt to serve

[47] http://ec.europa.eu/agriculture/fruit-and-vegetables/producer-organisations/index_en.htm

farmers with services that primarily support private goods. Table 5 summarizes the key types of services identified in the literature that fall into nine categories. Production and marketing related services are the most common among POs. Production related services help address input purchase and risk management related disadvantages faced by small farmers and usually involve input provision, often according to the specific needs of buyers, and the coordination of production among producers both in terms of crops and timing in order to try to best harmonize PO members' collective production with the expected demand in the market. Marketing services help address the economies of scale related smallholder disadvantages through collective transports, storage, market analysis, processing, branding and certification, among others, and thus help address market knowledge and output markets related small farmer barriers. Technology services make engineering and scientific solutions available to farmers that help address technical knowledge, risk management, product traceability and quality assurance related barriers and improve productivity. This may involve the research & development, dissemination and training

related to new crop varieties and production and marketing related technologies.[48] Financial services involve PO financing to participant farmers, usually complementing other services offered, in order address the barriers faced by smallholders in accessing capital. For example PO financing alongside technology services allow farmer to invest in farm productivity, efficiency or risk management improvements. Educational services can help address smallholder barriers in several areas and may include core farm operation related training and information provision (such as extension services, business or financial literacy training) as well as non-farming specific training and information such as those related to health, nutrition, clean water and sanitation. Welfare services include social safety net services usually focused on the most disadvantaged PO participants or those suffering some temporary hardship and thus can fulfill a role in addressing the risk management related disadvantages faced by smallholders. Resource management services may involve the handling and coordination of activities related to common goods like water, pasture, fisheries and forests or farm specific resource management such as services related to soil

[48] With climate change this technology dissemination is an increasingly important service that POs can provide even when they include simple technologies like drip irrigation, green houses, tunnels and hail protection.

conservation, water and energy use which can also help contribute to improved smallholder risk management. Organizational services are aimed at building institutional systems and capacity that supports transparency and thus farmer collective action and policy advocacy involves awareness raising and lobbying activities.

Table 5. PO services

TYPES OF SERVICES	EXAMPLES OF PO ACTIVITIES
Organizational	Organizing farmers, supporting collective action, internal systems, institutional capacity building
Production	Input provision, facilitation and coordination of production
Marketing	Transport, storage, marketing, processing, market information and analysis, branding, certification
Financial	Savings, loans and other forms of credit, financial management
Technology	Education, extension, research
Education	Business skills, health, production
Welfare	Social safety nets
Resource management	Water, pasture, fisheries, forests, soil conservation
Policy advocacy	

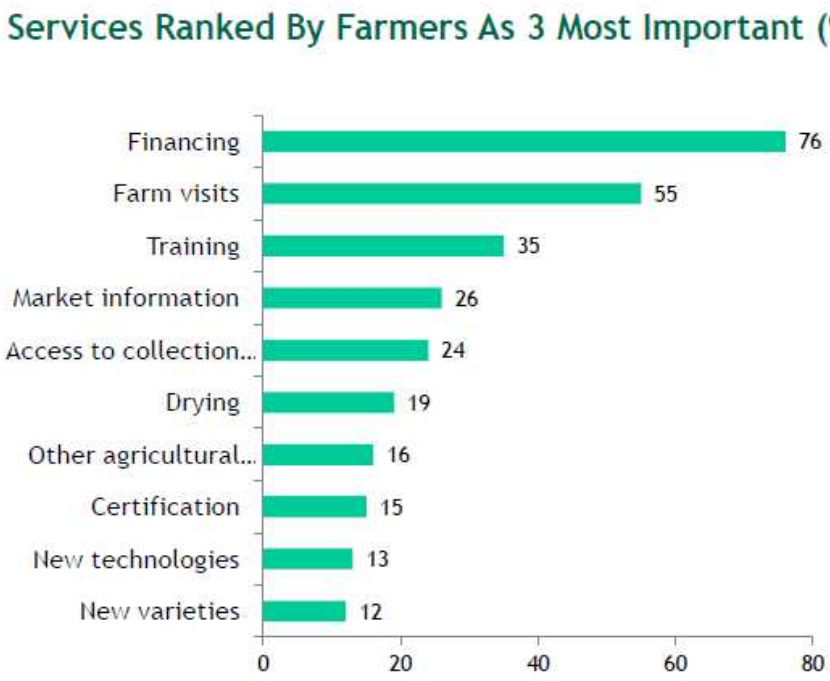
Source: Hellin et.al. 2009, Markelova et.al. 2009, Narrod et al 2009, Rondot and Collion 2007

The range and types of services vary considerably across POs. Some POs, for example the fairly common marketing cooperatives, focus on a single service type sometimes with as few as one or two specific services (for example sorting and collective sales activity in case of marketing cooperatives). At the other end of the spectrum there are POs that offer a wide range of different services and may even have explicit social and environmental missions in addition to economic.

The literature on PO services, including several farmer surveys, appears to confirm the importance of PO services in farmers' PO participation decisions. Receiving services have been shown to increase farmer loyalty and mitigate the side-selling risk (Ecom, 2012). However, the literature is nearly silent about whether some services may be more important than others. The only study that the author is aware of that investigated the importance of various services is Keystone's "Voice of the Farmer" survey (2012). The study is based on the survey of approximately 1,000 coffee farmers in Nicaragua that supply coffee trader ECOM. Among others, farmers were asked to rank the top 3 services they consider most important. The services highest ranked by farmers were financing, farm visits (extension services) and training. See Table 6 for

more detail. However, it is unclear to what extent these findings can be generalized for other forms of aggregators, sectors and countries.

Table 6: Farmer evaluation of services



As Monitor's (2012) findings highlight, however, POs need to choose carefully what services to offer that most benefit their members and the collective objectives of the organization.

2.13 Role of Finance

Historically smallholders' finance need was met to a great extent by local informal lenders, often input vendors, who were familiar with the farmers. (Frederico, 2000) The decline of such informal financial systems has not been accompanied by the emergence of any systematic alternative, contributing to a significant market failure in the area of smallholder finance, with only about one percent of the market need currently met (Dalberg 2012).

2.13.1 History of Smallholder Finance

G. Frederico's economic history of agriculture about the period between 1800 and 2000 highlights the importance of access to capital in agriculture throughout the past 200 years. According to Frederico (2000) while capital need is common for the entire economy, agriculture is different in its seasonality, in the fact that the same party (farmer) needs capital for both production and consumption and resorts to the same institutions with those needs. Unlike in other sectors, demand for capital can vary significantly and unpredictably from year to year. Frederico also highlights that since few agricultural businesses can raise money through the capital markets, most have to resort to credit. However,

the sources of credit have also differed from other types of enterprises. Larger and richer farmers have had access to formal financial institutions like banks, leasing or insurance companies. The vast majority of farmers, however, have had to raise the capital they need through the informal market. Moneylenders and pawnshops have historically been common in areas with independent family farms, according to Frederico. It was also common practice for landlords to provide financing to tenants in relation to ongoing expenses. Merchants and vendors pre-financed sales and financed machinery, respectively. The basis of the informal financial system was familiarity with the borrower. In fact the informal lender was typically an insider in the community and had much better information about the "bankability" of the borrower than formal financial institutions. In the 19th century financial intermediation mechanisms developed whereby landlords or merchants borrowed funds from formal financial institutions to onlend the funds at a higher rate to farmers. (Frederico, 2009)

According to a World Bank survey, in 1970[49] informal credit represented 72% of the total credit extended to agriculture in Asia, 63% in the Middle East,

[49] More recent data was not available. While outdated, this information illustrates agriculture's high degree of reliance on informal credit markets.

72% in Africa and 15% in Latin America (but with a note that this last figure may be underestimated (Wai 1977). Concerns about informal financial markets center around its high cost and potentially exploitative nature, which is confirmed by the limited data available and by anecdotal evidence.

As a result, governments around the world set up formal, often state-owned, financial institutions for financing agriculture or created incentives (and in some case requirements), for formal private financial institutions to extend credit to farmers. (To this day this practice continues in many countries). The results have been mixed at best, with significant leakages, corruption and inefficiencies as well as nonperforming assets in some cases, in part because such formal financial institutions did not have the insider familiarity with the farmers and government involvement in financing created moral hazard. These results led to the withdrawal of the state from providing subsidized financing to small farmers in most developing countries which has not been replaced by the private sector, leading to a market failure in the area of rural finance (Kherallah, 2001).

Most commercial financial intermediaries shy away from agricultural lending due to a combination of what they consider to be high risk and low profitability.

2.13.2 Forms of Smallholder Finance

KIT/IIRR (2010) differentiated three forms of finance with potential to benefit smallholders:

1. Chain liquidity involves short-term loans to smallholders from buyers (advance payment) or suppliers (input purchase on credit).

2. Agricultural finance involves short or long term financing from formal financial intermediaries directly to farmers or producer organizations or to a value chain actor that on-lends to farmers. Agriculture finance relies heavily on hard collateral.

3. Value chain finance has evolved in response to the lack of available financing sources, leveraging business relationships within a value chain, building on the value chain's systemic character. Value chain finance has several advantages over other forms of agriculture finance when it comes to smallholders. Value chain actors tend to have better knowledge of producers, the risks and profitability of their operations and have the opportunity to bundle financing with other activities (commodity flow, input supply, extension services, off-take contract, etc.) that can help

reduce credit risk and transaction cost. Despite some of these advantages, value chain finance does face limitations, especially in terms of its ability to control loan default in the case of side-selling and diversion of the proceeds to other farmer needs. Therefore financial intermediaries are generally reluctant to engage in value chain lending and non-financial players (such as off-takers and input providers) rarely want to take on the role of the financier and prefer to concentrate on their core business. (GPFI, et.al. 2011) The global demand for smallholder agriculture finance is estimated at $450 billion, a significant market. (Dalberg 2012). Value chain finance has a strong potential to take advantage of this market opportunity but it also has a significant limitation; it requires farmers to be aggregated into POs. At current levels of farmer aggregation Dalberg (2012) estimated the addressable demand for financing at $22 billion, which is expected to increase by another $11 billion if another 5% of farmers were to get organized into POs. In addition, Dalberg (2012) found that many of the key barriers to smallholder financing, namely low levels of farmer organization, financial literacy, collateral and productivity, could be addressed through POs.

In reality, there is very little financing available in most markets that benefit smallholders, which is why governments continue to implement costly special programs that too often do not accomplish their intentions (Federico, 2009). For example in some rural areas of Mexico as little as 2.5% of the population has access to formal credit (World Bank, 2010).

3. Model of GVC Relevant Aggregation

This chapter proposes a theoretical model of how producer organizations can help smallholders achieve access to GVCs and thus provide them an opportunity to supply growing modern markets. The model outlines the necessary elements of Global Value Chain Relevant Aggregation (GVCRA): the collective action problem faced by smallholders (Section 3.1.1) and collective identity considerations (3.1.2), bounded rationality (3.1.3) and farmers' cost benefit analysis (3.1.4) and assessment of aggregator types (3.1.5) when considering PO participation. Figure 6 below outlines the pieces of the model.

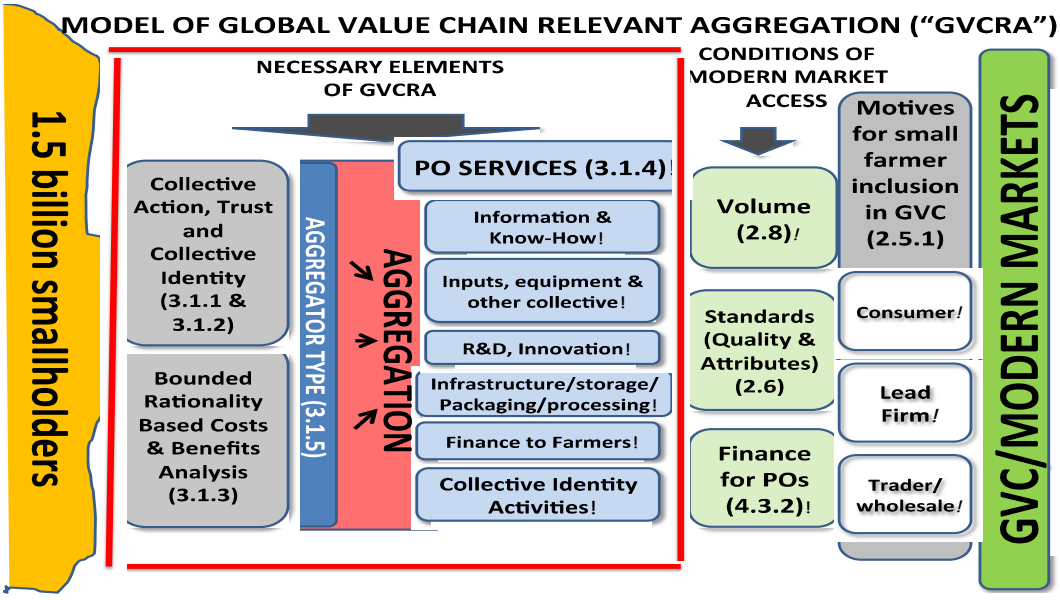


Figure 6: Model of GVC Relevant Aggregation

There is significant empirical evidence in the form of case studies that suggest that participation in both buyer and producer driven value chains can benefit smallholders (Lee, et.al. 2012) but that in most cases GVC participation requires some form of aggregation. However, it is also clear from the literature that PO participation in and of itself does not guarantee GVC access which, in turn, contributes to low farmer interest in joining POs. While there is considerable suggestive evidence, especially from case studies, a theoretical model that can articulate the link between farmer aggregation and GVC access has been lacking. Hence is this effort to propose a model of "GVC Relevant Aggregation" (GVCRA).

The conditions of GVC and modern market access and the motivations of GVC actors for engaging with smallholders have been outlined in section 2. In this section a model of GVC relevant aggregation ("GVCRA") will be proposed that aims to contribute to an improved understanding of the PO characteristics that can contribute to smallholders' GVC access.

The model has the following components:

1. Farmer decision about PO participation is modeled based on the combination of two different conceptual frameworks. First, collective action theory and the concepts of trust and collective identity are applied. Second, bounded rationality based cost-benefit analysis is applied to farmer decision-making in the context established according to the trust and collective identity based framework. These considerations will influence farmers' evaluation of PO types and the value of services and activities carried out by POs and thus the ultimate decision of PO participation.
2. A modification is recommended to the cooperative-IOF dichotomy of PO types by introducing the hybrid type of POs that combine both cooperative and IOF characteristics. The GVCRA model suggests that PO structures influence the alignment of incentives between farmers and POs, farmer decision about participation and farmers' likelihood of behavior that can undermine collective action.
3. Based on the conceptual framework outlined, in particular the bounded rationality based cost-benefit analysis, the GVCRA model

suggests that PO services are important for farmers' continued PO participation and to mitigate the risk of side-selling and thus for POs to scale and achieve GVC access.

3.1 Farmer Decision about participation

3.1.1 Collective action problem

At the core of this paper's conceptual framework is the collective action problem faced by smallholders. It is through collective action, through PO participation and the collective use of facilities, equipment and services that farmers can maximize the collective benefits they gain from small-scale farming. However, farmers face a collective action problem. Their short-term individual benefit may be maximized via side-selling and free-riding.

Side-selling can be considered an assurance game problem. It involves farmers side-selling their products to third parties to maximize their income from a single transaction in violation of their agreement with the PO and therefore undermining the PO's ability to meet its contractual obligations, which can have severe operational and financial consequences for the PO both in the short and long term, especially when modern or global value chains are involved. The immediate consequences include financial penalties for not meeting contractual obligations and finance costs for borrowing funds to purchase needed crops on

the spot market while long term implications include undermining relationships with buyers, losing contracts, deteriorating reputation and weakening financially, as the case studies will illustrate. These consequences of side-selling also undermine single farmers' ability to maximize their income in the long run via stable collective action. Key to this assurance game problem is the scale of side-selling. Farmers recognize the positive prospects of stable collective action. However if they suspect that other farmers will side-sell in large enough numbers that may undermine the return from stable collective action then they will side-sell to maximize their individual returns from a given transaction.

Another form of collective action problem in POs involve free-riding. One form of free-riding involves farmers' taking advantage of PO services but not delivering the crops committed in term of quantity (side-selling) or only delivering poor quality crops. The latter involves farmers selling the poorest quality products to the PO and selling their best quality produce at the spot market, thus deteriorating the overall product quality of the PO and undermining its ability to secure favorable future contracts.

Monitoring and sanctions are an important mitigation strategy for the above collective action problems but often not feasible in case of smallholders.

The PO may lack the technical resources for monitoring, the political will for sanctions may be weak[1] or the problem so widespread that sanctions are no longer an option.

3.1.2 Collective Identity

Borgen (2001) also found, however, that members' identification with their cooperative can be a significant trust-making mechanism (Ole Borgen 2001). Collective identity is an "individual's cognitive, moral and emotional connection with a broader community, category, practice or institution. It is a perception of a shared status or relation which may be imagined rather than experienced directly, and it is distinct from personal identities, although it may form part of a personal identity." (Polletta, et.al. 2001).

Collective identity is mostly discussed in the literature the context of social movements. However, based on the interviews carried out for this research, we hypothesize that collective identity may offer some valuable insights into the relationship between farmers and POs. "Agriculture is not just

[1] Especially in the case of cooperatives where all participants, including free riders, participate with equal vote in the governance.

about products, value chains and quantities. It is a way of life", said Mamadou Cissokho[2] in a recent speech, stressing the importance of collective identity.

In contrast with Bijman et.al.'s assertion that POs possess a shared identity as a general characteristic and implying that it is a passive PO attribute, interviews carried out as part of this research reflected a high degree of variation in collective identity among POs. Nilsson et. al.'s attribution of the success of Japanese and Norwegian cooperatives in part to their ability to have the cooperative experience influence farmers' self-identification also suggests that collective identity is not a passive characteristic but can be actively influenced. Examples of collective identity building activities may include sponsorship of local community events and organizations, including support for youth groups and sport teams, and projects and activities that elevate the status of food production and farming.

An important mechanism for influencing the collective identity and farmers' identification with that is through narratives.[3] Shared narratives are not

[2] Honorary President of ROPPA (Network of Farmers' and Agricultural Producers' Organisations of West Africa). Source: MEETING THE GROWING DEMAND FOR FOOD IN AFRICA Summary report, 2013)

simply the consequence of being in a community but they help constitute a collective identity that supports collective action (Mayer 2014). Shared narrative in case of POs focus on elevating the dignity of farming and the rural lifestyle, and manifest itself in PO projects and initiatives which I will collectively refer to as "Collective Identity Activities" or "CIA".

Hypothesis 1: "collective identity narratives", manifesting themselves in Collective Identity Activities, play an important role in facilitating the growth and competitiveness of POs.

[3] The process of interviewing POs revealed considerable PO efforts in some cases around improving the dignity of farming and rural livelihoods, with narrative (on PO websites, in media interviews and in the author's interviews) that supports the creation of a collective identity around the values of high quality production, local traditions, commitment to the development of the local community (including supporting local athletes/teams and youth sports), and elevating the appreciation for and dignity of farming, among others.

3.1.3 Bounded rationality

For purposes of this dissertation it is assumed that farmers are bounded rational, that they assess the costs and benefits of PO participation based on imperfect information available to them and use heuristics and other processing shortcuts to make decisions about their participation in POs. Farmers' assessments of the probability of the benefits materializing will be influenced by their social networks and trust towards other relevant economic actors.

Bounded rationality as a framework departs from global rationality in that bounded rational behavior is compatible with the access to information and assessment capacity possessed by the decision maker (Simon, 1955). According to Simon (1956), theories of bounded rationality can be generated by relaxing some of the assumptions of utility theory (Savage 1954); namely that choices are made (i) among a given, fixed set of alternatives, (ii) with (subjectively) known probability distributions, and (iii) to maximize the expected value.

In recent years the bounded rationality framework has been applied to better our understanding of farmer behavior in situations involving change away from the status quo. In particular, the bounded rationality framework has been used to explain farmer hesitation to switch to organic production (Brock, et.al.

2013) and to change their house bank (Musshoff, et.al 2009), despite seemingly attractive financial rewards.

This approach recognizes both farmer internal constraints (cognitive limitations or biases) as well as external constraints (farmers' lack of access to complete information, at least partially unpredictable benefits from PO participation, etc). Accordingly, this work builds on the idea that farmers' choices and decisions about market channels and behaviors (including side-selling) exhibit bounded rationality with cognitive biases influenced by their social networks and limitations of the information available to farmers.

In particular, I propose that farmers' cost benefit analysis is carried out within the framework of bounded rationality.

3.1.4 Cost-benefit analysis and PO services

When it comes to the farmers' assessment of potential PO participation, the farmer needs to evaluate the likely net benefit of PO participation. This involves assessing the costs of participation including entry fees, cost of meeting PO requirements, cost of transitioning into the formal sector and possible delay

in receiving payment against the expected benefits of participation, including the value of services received, savings on inputs and price premium on sales. While most of the costs of participation are reasonably certain at the time of the farmer's decision and many occurs immediately or soon after the farmer decides to participate. The value of benefits, on the other hand, can be more difficult to predict. Where the PO will sell the farmers' products and any price premium is nearly impossible to estimate and farmers' cannot be certain of those benefits until a few days prior, or sometimes even after, the delivery of their harvested products. Farmers' assessment is further complicated by the additional layer of uncertainty related to the likelihood of the PO's participation in modern markets/GVCs. Therefore, based on availability heuristics, farmers are likely to put significant weight on the reasonably tangible and predictable benefits of PO services in their assessment of PO participation.

Therefore services offered need to go beyond the basic marketing oriented services (sorting, storage, cold storage, packaging, collective marketing) and also include one or more of the following:

- information and knowledge services,
- collective input acquisition,

- equipment use and other collective services relevant for the aggregator,
- innovation related services such as developing and testing new crop varieties, technologies, branding, etc.
- access to finance

These services help reduce farmers' risk and costs, achieve the quality, quantity and attributes required by modern value chains on an ongoing basis, and improve both productivity and efficiency and thus the chances that farmers can collectively find markets and favorable terms for their products.

This leads to hypothesis 2:

Hypothesis 2: Services, including access to financing for farmers, provided by POs play an important role in facilitating scaling.

3.1.5 PO Types

The existing literature differentiates two predominant types of POs, cooperatives and IOFs. (See Section 2.8) Cooperatives are organized by producers_to materialize benefits from some collective activity such as production, input sourcing, marketing, value added activities, information and know-how acquisition, etc. Cooperative formation may be assisted, or even initiated, by third parties such as NGOs but cooperative members make

decisions based on a democratic process (see section 2.8 for more detail) and thus by their very structure require significant farmer collective action.

IOFs are typically initiated by offtakers or investors and the relationship with the majority[4] of the smallholders involved usually take the form of contract farming as buyers of agricultural inputs aggregate smallholder production in order to meet their specific supply need usually based on strictly defined requirements and standards. IOFs' decision-making is motivated by the interest of their shareholders, which is usually to maximize shareholders' wealth. Therefore smallholder collective action has more limited importance in IOFs than in cooperatives and monitoring and sanctioning of side-selling behavior tends to be very strict.

A third category of PO types, hybrids, will be proposed in this dissertation. Hybrid aggregation involves partnership between a group of formally organized smallholder producers (often organized as a cooperative but not necessarily) and either a larger farmer or medium size processor/buyer (organized as an IOF) whereby there is structural alignment of incentives based

[4] Smallholders or farmers may also be investors but most smallholders do not have investor relationship with the PO in the case of IOFs.

on mutual dependence for market access and competitiveness. Activities and decisions are driven by the joint interest of the partners and are less dependent on smallholder collective action.

It is hypothesized that, in line with Borgen's findings, cooperatives are the most vulnerable among PO types when it comes to scaling and GVC access.

Hypothesis 3: Cooperatives are at a disadvantage compared to other PO forms in achieving the conditions necessary for GVC access.

4. Empirical Evidence

To evaluate the model developed in the previous chapter, both qualitative and quantitative methods are used. Much of the evidence is based on material collected in Hungary during multiple visits between 2008 and 2014 including in-depth interviews with farmers, producer organizations, officials of the association of vegetable and fruit producers, interest groups, buyer organizations, government officials, the head of agriculture lending and agriculture specialists at the primary financier of producer organizations and development agency officials. In addition, a database of all Hungarian recognized POs was assembled for the quantitative analysis from multiple data and government sources, websites and structured interviews which.

Complementing the quantitative analysis of all Hungarian recognized POs are two case-studies which are based on in-depth interviews with the general manager of the producer organizations, interviews with various relevant stakeholders including PO employees, farmers, financiers and government officials and existing literature.

The hypotheses are also tested on data of aggregators from Honduras, Costa Rica, Nicaragua and Peru, an analysis that is further informed by interviews carried out with personnel from cooperative union organization, NGOs and financiers.

4.1 Hungary

There are several considerations that led to the selection of Hungary for the empirical analysis. First of all, it is very difficult to obtain data on POs, especially in emerging economies, which is why most PO studies focus on case studies or sample based approached. In Hungary the Ministry of Rural Development set up an office dedicated to PO matters, in addition to a recent change that made the annual reports of all Hungarian economic entities available via a searchable database, making it possible to obtain information and collect data on every single recognized PO in Hungary to study the entire population of recognized POs. This is also supported by the EU's classification of fruit and vegetable POs which makes it feasible to track recognized POs.

Second, Hungary's mix of farm sizes is similar to many of the least developed countries: a relatively small number of large producers and a large number of small producers. Third, the PO definition used by the EU policy is unique in that it is not limited to cooperatives but includes aggregators of smallholders regardless of their legal structure. This provides a unique opportunity to study non-cooperative forms of POs and compare their performance to that of cooperatives.

4.1.1 Background

Hungary's land ownership structure, policy support framework and the importance of horticulture for the livelihood of the rural poor and for the country's overall economy provides an opportunity to study smallholder aggregation and to test the GVC relevant aggregation model .

Hungary has 158 agricultural producers with land of more than 2,500 hectares[1] and over 500,000 small producers of 10 hectares or less, a structure similar to many least developed countries and unlike most of its peers in the European Union as illustrated in Figure 7.

[1] Source: Agricultural Statistical Yearbook 2012

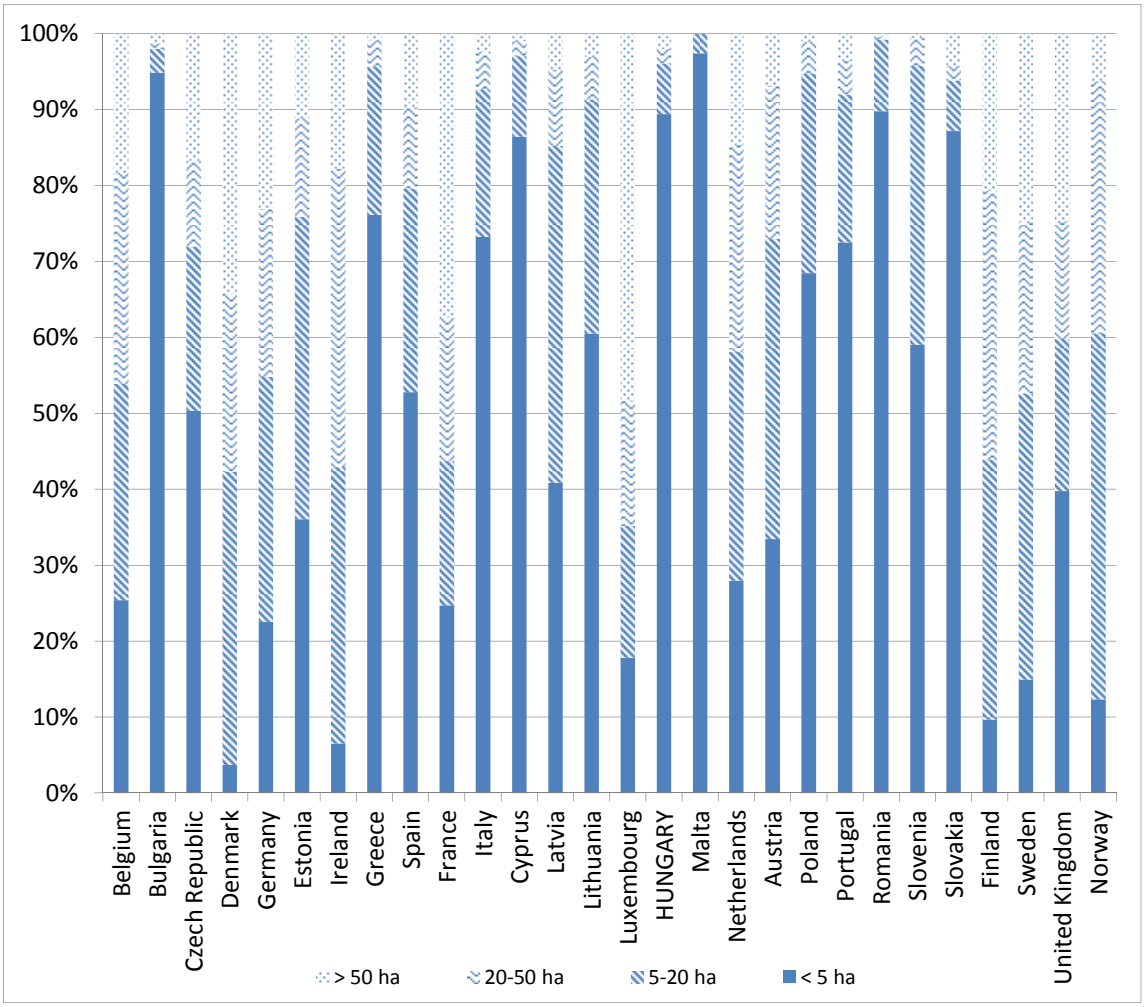


Figure 7. Distribution of farms by land size, 1997.

(Source: Author prepared)

Hungary has favorable natural conditions and a long tradition in fruit and vegetable production. However, competition from imported fruits and vegetables have been intensifying. Hungarian fruit and vegetable exports have

remained stable over the past 15 years but imports have doubled during the same period, from imports representing less than half of the export volume in 1997-2000 to more than three quarters in 2007-2010.

Approximately half of the national fruit and vegetable consumption is in fresh form while the other half is in frozen and processed forms (FruitVeb, 2012). EU production amounted to 61.3 million tons of fruits and 65.8 million tons of vegetables while Hungary produced a mere 0.8 million tons of fruit and 1.4 million tons of vegetables[2]. Despite its seemingly small size in the global context, in Hungary fruit and vegetables is the third most important agricultural sub-sector in terms of output and the top one in terms of its exports.

In 2012, fruits were produced on 77,013 hectares while vegetables on 55,233 hectares. The fruit and vegetable sector provided approx. 12% of the agricultural value produced, on 3% of the land. Approx. two thirds of this value came from vegetable production and the remainder from fruit production. Based on 2010 data, ninety nine percent of the 91,731 fruit producers are smallholders, with average smallholder farm size of 0.62 hectares in comparison with average

[2] According to the FAO, global production of fruits was 637.9 million tons and 1,088 tons for vegetables in 2011

large holding of 25 hectares. Similarly, 98% of the 25,671 vegetable farmers were smallholders, in their case with average land size of 1.22 hectares in comparison with large holding producing on average land size of 51.2 hectares (2012 Report to the EU by Euriditio).

According to the Hungarian Vegetable-Fruit Sector Strategy by the Ministry of Rural Development (FruitVeb 2012), the development of the fruit and vegetable sector is an important national priority driven by sustainable rural development and employment creation objectives. According to the strategy, the fruit and vegetable sector has the potential to become the most competitive among agricultural subsectors in Hungary and thus become well positioned to take advantage of growing international demand. However, the report also highlights that one of the key challenges faced is that despite Hungary's favorable natural endowments, producers do not produce the quality and quantity demanded in the international markets. Currently approximately 50% of the production is exported. The ratio of fresh vs. processed is 60:40 but demand is shifting toward fresh produce. Modern irrigation is essential for market driven horticultural production, not to mention irrigation's importance as risk mitigation especially with changing weather patterns related to climate

change. Only approximately 20% of Hungarian horticultural production is irrigated despite the country's favorable conditions both in terms of surface and ground water resources available, making this one of the key focus areas for development (FruitVeb 212). Another key area for development is controlled environment horticulture. Production in green houses and tunnels need to be increased to facilitate more year-around production capacity and in order to be able to meet the requirements of modern markets as timely production and harvest is increasingly difficult with weather related uncertainties. Currently green house and tunnel production is carried out on 3,500 hectares, 85% of which are considered outdated. Hungary's geothermal energy sources offer a cost effective and sustainable heat source for green houses and tunnels. Even though Hungary's conditions for geothermal applications in the fruit and vegetable sector is considered one of the best in the world (FruitVeb 2012), only 6-8% of green house and tunnel production uses geothermal heat sources currently. Access to finance is a key barrier to the expansion of irrigation, controlled environment horticulture and the use of geothermal energy.

The fruit and vegetable market is dominated by modern retail chains, accounting for 54% of vegetable and 56% of fruit purchases (Domjan, 2013). The

market concentration in the retail sector is significant with the five largest retailers representing 69% and the ten largest representing 93% of the market (Domjan, 2013).

A survey of retail chains operating in Hungary (Seres, Kerteszet[3] 2010a,b), found that retailers had three related objectives when it came to sourcing fruits and vegetables: first, to cut out middle-men from their supply chains, increase margins and reduce the number of suppliers they were sourcing from. The survey also found that retail chains resort to importing fruits and vegetables if they cannot source a product domestically in the quantity and quality desired. The study revealed that retailers considered domestically sourced fruits and vegetables better tasting and more fresh than import sources, however preferred imports from the perspectives of easier planning, better reliability and producer attitude towards side-selling. When it comes to volumes, they reported that domestic suppliers often struggle to meet larger contracts, especially at times of advertised "specials" which can involve as much as up to eight times the regular purchase volumes. In addition, the Hungarian season is relatively short and few

[3] The Hungarian horticulture sector's weekly professional publication.

producers have all-year production capacity. Uniformity and high quality on an ongoing basis was indicated as another concern with domestic suppliers. Many retailers, especially the foreign owned ones, also highlighted the importance of suppliers meeting their cleaning, sorting, packaging and labeling requirements. In terms of side-selling, retailers reported that when the spot market price exceeds the contractual price, it is not infrequent for domestic suppliers to violate their contracts with retailers and sell their products on the spot market.

Seres et.al (2010a,b) also found that retail chains have 2-6 suppliers for each product, driven by the desire to diversify and avoid dependence on any single supplier. The retailers reportedly do not differentiate between large producers and POs of smallholders, as long as they are willing and able to meet the retailers' requirements. Retailers, however, highlighted the disconnect with POs in that POs often prefer to trade in multiple fruits and vegetables while retailers prefer more specialized suppliers which can supply 3-5 products in large quantities. The survey also highlighted the limited branding undertaken by POs to help emphasize their products' attributes and origin.

Some small farmers have succeeded in establishing direct relationships with buyers in the form of contract farming, in particular in the area of highly

perishable and niche products which are sourced in small quantities at a time, such as herbs (Seres, 2011). However that is the exception rather than the rule. Beside those few exceptional cases, the only possible opportunity for smallholders to supply modern markets is through aggregation (Hanf, et.al.). However, studies observed that POs tend to have more problem meeting retailers' quantity requirements in general, which is also influenced by POs' difficulties dealing with side-selling which in turn can lead to the violation of their contracts with retailers (Seres et.al 2010a,b).

As far as POs are concerned, the EU's and thus Hungary's policy on POs is unique in that in its definition POs[4] include all farmer initiated aggregators of all legal forms including joint stock companies, limited liability companies and cooperatives as long as they fulfill certain requirements. (See Appendix J for details). Fruit and vegetable producers are eligible for some support from the EU

[4] POs, are defined by in the European Council regulation (EC) n° 2200/96 and as replaced by the Council regulation (EC) n° 1234/2007 (consolidated version. In order to be registered as a PO under these EC rules, the PO has to have at least 15 members, fruits and vegetables have to account for at least 50% of its sales while total annual sales have to amount to at least HUF 250 million (approx. USD1.1 million). (Sandor et.al. 2011)

through their POs, which creates an incentive for participation (Source: Bakucs, et.al. 2007).

Despite such incentive participation has lagged well behind expectations. A 2009 study (Nagyne 2009) found that 65% of family farms that do not participate in any form of aggregation, formal or informal, despite some strong informal networks that could serve as the basis for more formal collaboration. Their study also found that 20% of those that participated in POs did not see any benefit from doing so. The survey of 200 farmers suggested that the reasons for non-participation in POs were not finding participation beneficial (37% of respondents), lack of trust (33%), lack of knowledge about POs (26.8%), no POs is close proximity (22%) and rejection (6.3%). This study also tried to assess the needs of the farmers and found that the benefit that farmers would like to achieve from POs are related to joint marketing, professional advice, and increased security and predictability of sales and input costs.

Despite the European Union's supportive policies of fruit/vegetable POs; the market share of POs have not increased over the past several years either in Hungary or in the EU (Dudas-Juhasz, 2013). In 2011 Hungarian POs coordinated fewer than 18 thousand producers, representing 42,000 hectares, HUF 32.97

billion in sales, representing 18% of the Hungarian fruit and vegetable production, compared to the target 40% (FruitVeb 2012) while most POs have remained small (Becz 2012).

It is estimated that approximately a third of the domestic production and 40% of imports exchange hands in the informal market, creating not only lost revenues but also representing concerns for food safety and traceability. The value added/consumption tax of 27% is a significant deterrent for producers to shift to the formal sector.

POs offer a range of services to their members. All POs engage with collective marketing. However, there is great variation in terms of additional services provided.

Despite a strong tradition of agricultural excellence and the legacy of world record agricultural productivity levels in certain crops, agricultural technical and technological research and development nearly disappeared in Hungary over the past twenty years and productivity and quality in the fruit and vegetable sector stagnated at its 1980s level (FruitVeb 2012). A few POs have invested in own research activities and foreign expert advisors which they have

successfully turned into a competitive advantage especially when it comes to selling their products internationally.

During the past twenty years specialized education and training options relevant for fruit and vegetable producers have also declined, along with the quality of extension services available. There are efforts to develop an independent extension service network which is envisioned to be one of the core activities of TESZ-ESZ, a secondary producer organization of 29 Hungarian POs, along with R&D, training, quality assurance and advocacy related activities (www.teszesz.hu).

However for the time being, according to some of the interviewees, in order to satisfy the requirements of modern value chains, Hungarian horticultural producers need to source all of their inputs, even advisory services, from the global marketplace.

The existing literature on Hungarian POs focuses on the importance of trust for farmers to join a marketing cooperative, highlighting both the importance of trust among members and members' trust of management (Bakucs et al., 2007, 2008). Some studies suggested that Hungarian farmers have low willingness to

cooperate, generally explained by low level of social capital and trust (Szabo 2012), but the empirical evidence on this this point is limited.

4.1.2 Data collection and methods

The following sources of data is used for the Hungary related empirical analysis:

1. Two producer organization case studies; Morakert and Delkertesz;
2. Data was assembled from various sources on all the 47 Hungarian Producer Organizations that were qualified by the Hungarian Ministry of Rural Development as such as of April 2013 (see Section 4.1.5.1 for more detail on the sources used);
3. Interviews with experts, practitioners, POs and farmers.

Some general findings about Hungarian POs will be provided in this section. Next two cases will be analyzed; that of Morakert PO, the first Hungarian PO to earn the official certified PO status and the largest PO until 2009, and that of Delkertesz PO, the largest PO since 2009. Last, the data collected about Hungarian certified POs will be analyzed.

4.1.3 General interview findings

The purpose of this section is to summarize some of the general interview findings to help provide the general context for the more detailed analysis that follows. The findings of the interviews carried out were for the most part consistent with the existing literature. While the existing literature explains the low participation rates in POs with lack of trust and weak social capital as a result of the collective memory of forced collectivization, the interviewees often portrayed a more nuanced picture. While the interview did confirm concern about the trustworthiness of POs, especially PO leadership, they also revealed careful farmer cost-benefit calculation regarding PO participation. In addition, the interviews revealed strong social networks and social capital among at work, at least on a small and highly socialized scale[5], among farmers, in contradiction with the assertions of some of the existing literature.

For example both Morakert and DelKERTESZ, the two subjects of the detailed case studies, had their origins in cooperatives founded in the 1960s and have

[5] It was not an objective of this study to assess or measure social capital. Nonetheless, the semi-structured interviews revealed some strong social network and social capital dynamics that the author feels is relevant to point out.

successfully motivated producer cooperation even after the political, social and economic turmoil of the 1980s and 90s. However, some expert interviewees noted that farmers often do not organize spontaneously, and some form of third party facilitation or motivation from respected individual is necessary. Farmer interviews revealed high degree of willingness to cooperate among farmers, but mostly informally and not in the form of POs despite the significant promotion policies. Examples of farmer barter arrangements are notable, whereby farmers specialize within a community both in terms of assets (for example agricultural equipment) and expertise and they help each other based on the on the expectation of mutuality, without cash payment. Such willingness to cooperate did not translate into general trust, in fact some of the same farmers with willingness to cooperate through such barter arrangements expressed high degree of suspicion towards 3rd parties from outside their community that attempts to engage with them. There was considerable skepticism expressed about POs. Interviewed farmers highlighted the transaction cost of cooperation via POs ("we don't have time and energy"), the desire to maintain their autonomy as opposed to being told what to grow and how ("producers have a desire for freedom") and skepticism about the government support available

("we know people who started 14 POs and received related subsidies while others tried to start one for 3 years and did not succeed") as barriers to starting or joining a PO. Others have indicated prior PO membership but discontinued their memberships due to frustration about the cost of compliance and high crop rejection rates. Several farmers expressed comfort with selling via traders in their own communities who were usually well known by them (in several cases even relatives). According to the farmers such traders would sell the crops to small shops and stands around the Lake Balaton.

Interviews with PO leaders revealed optimism about the prospects of fruit and vegetable production in Hungary due to the favorable natural conditions but also revealed considerable challenges in the areas of (i) market dynamics with modern market buyers, (ii) coordination of smallholders, especially when it comes to persuading them to grow the same, especially new varieties, and (iii) with governmental reporting and other red tape and requirements imposed on POs.

Retailers sign framework agreements with POs with contract terms being fixed only a week or two prior to delivery. Even the largest POs have little

negotiating power and influence on the terms of the contracts. Contract terms are determined by the retailers almost unilaterally and it is not uncommon for retailers to modify even the contractually agreed prices in case products are subjected to some special promotion. Retailers only source from the larger POs that can guarantee to deliver the expected quantity and quality of products and failure to do so results in significant penalties.

4.1.4 Case Studies

Case studies were prepared on two Hungarian aggregators, Morakert Producer Organization ("Morakert") and Arpad/Del-Alfoldi Kerteszek Producer Organization ("Arpad"/"DelkerTESZ"). Both of these POs sell a significant portion of their production to GVCs, mainly retailers.

Morakert was the largest and most successful PO in Hungary until its sudden downfall in 2009, after which DelkerTESZ became the largest PO. Both POs operated in Csongrad district in South-East Hungary, in the Hungarian plains. They both focused primarily on pepper and tomato production for the fresh vegetable market, selling to supermarket chains as their primary marketing channel. However, there are some key differences in the two POs' business

models and strategies which, at least in part, may help explain the different outcomes.

The case studies were prepared based on extensive literature review and interviews of the general managers of both producer organizations, industry experts, representatives of industry membership organizations, peer producer organization leaders, farmers, development professionals, and financiers active in assessing and funding POs.

4.1.4.1 Morakert

Morakert Cooperative was the showcase PO for many years, not only in Hungary but also internationally. Morakert was founded in 1995 with 52 members in Morahalom, a small town in the Great Plains region of Hungary, and was the first Hungarian cooperative to receive certified PO status in 2002. However, its predecessor organizations had been in existence since the 1960s. The number of members at one point reached 792, integrating 2428 hectares.

Morakert operated in an agricultural area of the country where agricultural production is "more or less the only" source of livelihood for the population (Bakucs. et.al. 2007). Climate and soil conditions favor vegetable and fruit

production and the most important crops cultivated are various types of tomatoes and peppers, cabbages, onions and potatoes.

After the traditional agricultural cooperatives ceased activity in the early 1990s, 1,500-1,800 smallholders in the Morahalom region (cultivating 3-5 hectares) attempted independent production. A lose network of producers was established in 1994 (Common Agricultural and Entrepreneurial Society of Morahalom) with government support to help strengthen the producers. However, their greatest problems were not addressed and struggled partly due to the oligopolistic and monopolistic situation faced in both the input market and when trying to sell their products (Bakucs. et.al. 2007). As a result, the local authorities established various programs and organizations for the support of smallholders. Morakert Purchasing and Service Cooperative was set up in 1995 in this reasonably supportive local policy environment. Members owned their own land and assets for farming. The cooperative coordinated purchasing and marketing and had cold storage facilities and trucks. Joint purchasing allowed members to reduce their costs by 18-20% (Bakucs. et.al. 2007). Morakert, and its member producers, focused primarily on peppers and tomatoes, while also

active in producing and marketing lettuces, carrots, potatoes and parsley. Morakert purchased produce from both members and non-members[6] and carried our sorting, packaging and storage with the aim of selling most of the aggregated crops to retail chains.

Morakert made considerable investment in infrastructure that helped enhance the value of members' products and meet the food safety, environmental and hygiene requirements of buyers. This included a sorting and packaging line, cold storage depot and transport vehicles. The handling, sorting and packaging line became operational in late 1999. Morakert opened its "agri-logistics centrum" in 2002 which, among others, included cold storage facilities and was further expanded in 2006. These investments were partly aimed at, and were critical for meeting, modern value chains' food safety and quality requirements.

Similarly to other cooperatives, new members had to purchase ownership share in Morakert, the value of which increased steadily over time from HUF 25,000 in 1995 to HUF 180,000 in 2006. To be able to make the abovementioned

[6] Members, however, had preferential treatment: they had a contract with Morakert while non-members were only called upon when members could not supply the necessary goods.

investments, new members also had to make a one time fixed "investment contribution" of HUF 330,000, a considerable barrier to smaller producers (Szabo 2012). Members also paid 4.6% of their revenues as a membership fee and contribution towards the operating costs of Morakert (which was then matched by EU subsidies).

In addition to coordinating joint input purchase and marketing, Morakert was also actively involved in providing information and advisory services to its members. Morakert signed framework agreements with its members and allowed 10% variation from contracted quantities. Morakert did not penalize contract violations but paid a 2% premium to members who stayed within the contracted range. Nonetheless, Morakert still experienced very poor contracting discipline which led to the introduction of pre-financing for those members only that delivered at least 80% of the volumes they contracted for, as an additional incentive for compliance.

Purchasing from non-members was key for achieving scale; in fact Mezokert sourced from 2,000 non-members. PO rules state, however, that the PO had to source the majority of traded goods from its members, which led to

the need to establish a limited liability company in 2005 that was a member of the PO and was responsible for purchasing from non-members and even importing, as needed. The retailers Morakert supplied typically require supply all year around which Morakert was not always able to satisfy from domestic production, especially in the winter months.

A survey of 44 Morakert members (Bakucs et.al 2007) revealed that members were selling 59% of their vegetables and 21% of fruit production through Morakert. 34% of producers sold all of their production to Morakert, 50% to 2-6 buyers and the remainder to more than 6 buyers. The survey also revealed that what most influenced members' choice of PO on average were the (1) volumes the PO was trading, (2) existence of contract, (3) flexibility and (4) trust.

Prior studies (Bakucs. et.al, 2007) attributed Morakert's success to the trust the leadership was able to establish. "The issue of trust is the true secret and key to the success of the cooperative" (Bakucs, et.al. 2007).

Morakert supplied most of the major retail chains and their share within Morakert's sales increased over time while Morakert also exported (approx. 20%

of its turnover) to over a dozen European countries. The proportion of production sold to retailers increased from 5-10% in the earlier years of operations to 90% by 2006 (Racz 2006), While retailers offered a stable market for Morakert, even during its years of prosperity the Morakert leadership noted how challenging it was to meet the exact requirements of retail chains and to work with their terms of trade, especially payment terms. Morakert used HACCP, GLOBALGAP and BCR quality assurance systems to meet legal and market requirements (Szabo 2012).

Morakert put great emphasis on differentiating its products via branding and anecdotal evidence suggests considerable consumer awareness of the Morakert products. In particular, Morakert created an image associated with Hungarian grown fresh tasty food, something that resonated with many domestic consumers. Morakert also provided basic extension services to its members on an "as-needed" basis and occasional training courses.

Morakert was considered a PO success story internationally for many years. The Regoverning Markets[7] project even published an English language case study in 2007 as an example of successful innovation to connect small producers to markets and as the most successful Hungarian PO (Bakucs et.al. 2007). The authors argued that three factors had contributed to Morakert's success. First, the screening of potential members. Second, strict rules to enforce the quality and quantity requirements of the PO…. Third, the trust that the leaders of Morakert were able to establish with members. These elements helped form the perspective of a "private contract enforcement mechanism" that played a key role in preventing side-selling.

However Morakert started experiencing problems in the 2nd half of 2008 which further escalated in 2009. The financial crisis at the time made it more challenging and costly for Morakert to obtain financing, even for working capital. The Southern-Eastern part of Hungary was hit by a particularly poor tomato season and Morakert had to import tomatoes from Spain in order to meet its contractual obligations with large retailers, which in turn required bank

[7] http://www.iied.org/regoverning-markets

financing. The cost of bank financing and tight repayment schedule made it difficult for Morakert to pay its members for the products they delivered. Morakert's management called a meeting to explain the situation and asked for its members' understanding, trust and patience. Some members initially granted that trust and continued delivering their crops despite the significant uncertainty regarding when they would receive payment, but they were in the minority. Fewer and fewer producers brought their products to Morakert and the PO had to increasingly rely on purchases from non-members and imports to comply with its contractual obligations with retailers. At the same time local newspapers published accusations that members of Morakert's management were personally becoming rich from Morakert's activities.[8] Subsequent articles made claims of business interests and lavish homes having been built across the Hungarian-Romanian border in Hungarian speaking Transylvania, further undermining producers' willingness to supply Morakert. (These accusations have not been proven to have any foundation according to the author's research.)

[8] I was unable to find written record of those articles; the local newspapers do not have comprehensive online archives. However, these accusations have been mentioned by Morakert management as well as farmers interviewed.

One cannot help but wonder how the strong social capital and trust that Morakert was internationally famous for could so quickly disappear on the basis of some empty accusations and temporary financial challenges. It is important to note that the nature and structure of these financial difficulties were not unprecedented at the time and there were several POs that successfully managed those challenges. In addition, given Morakert's stature in the market and it is region in particular, public support was also promised (even though it is unclear how much, if any, was delivered).

However, there was another force against Morakert that contributed in significant ways to the loss of member trust and to the PO's ultimate demise. Morakert's products had a strong Hungarian identity. The packaging reflected the national colors, advertising and marketing strategies centered around the Hungarian product identity. Morakert opened two full time stores of its own in Morahalom and Szeged (fourth largest city in Hungary) in 2007 with the stated mission of making high quality Hungarian products available directly from POs to consumers, where in addition to its own products, it was also selling

complementary products (eggs, meat, etc.) from several other POs. [9] The success of those stores was followed by the very public opening of a third store in downtown Budapest in September 2008 and the declaration of the opening of 7 additional stores in major cities around the country. The publicity around the store openings repeatedly highlighted the mission of making high quality, fresh Hungarian food products produced by POs available directly to consumers, which was were well received. [10]

Against this backdrop, it caused considerable shock when a reputable Hungarian weekly magazine published an article about Jordanian peppers being labeled as Morakert products (168 Ora, 2010), which in turn led to numerous news reports, local articles and blog posts on consumer websites. The articles remarked not only about the misleading practices but also about the poor taste and aroma of the peppers purchased under the misleading label.[11] Morakert did

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[9] http://www.delmagyar.hu/szeged_hirek/betort_szegedre_a_morakert/2016248/

[10] http://www.elelmiszer.hu/fmcg_szakmai_hirek/cikk/morakert__markabolt_nyilt_budapesten

[11] To fully appreciate the sensitivity involved it is important to consider the importance of peppers in Hungarian life. Peppers is one of the staples and one of the most widely grown vegetables. It is eaten daily by Hungarians in fresh and cooked forms, dried spice form and pickled form, just to mention a few. It became a subject of national pride during the Austrian domination of Hungary (Sasvari, 2005). Its prominence was further strengthened by its

offer an official explanation suggesting that during times of limited domestic production it was unavoidable to source from abroad in order to meet its contractual obligation with retailers that needed fresh fruit and vegetable supplies all-year-around. The labeling used was not misleading, according to Morakert's explanation, it simply stated that the produce was packaged by Morakert while it showed Jordan as the country of origin.

Nonetheless, such events were not only detrimental in terms of shaking public confidence in Morakert that had been successfully tapping the "patriotic consumer" market. One of the blog posts provides a good reflection of the change in public sentiment: "I trusted them 100%. It was enough for me to see their label and so it [the product] went into the shopping basket. After this I will skip them altogether."

Producers, who take a lot of pride in growing their Hungarian peppers, also expressed strong resentment. Farmers expressed anger and humiliation and

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nutritional benefits and other applications that built even more national pride such as Hungarian Albert Szent-Gyorgyi's isolation of vitamin C from peppers which earned him a Noble Prize.

rejected the idea of the products they grow with much care and pride under Morakert's brand were being subjected to suspicion and rejection from the public. The fiasco with the Jordanian peppers did not only compromise the Morakert brand that was built on a Hungarian identity and shook consumer trust, but it also led to the overnight loss of collective identity that existed among the producers who had been growing the products sold under the Morakert brand with considerable dignity and pride.

Morakert went under bankruptcy proceedings in 2011 which has not been completed to date. Morakert had HUF3.6 billion in debt, a third owed to its suppliers. Table 7 illustrates the evolution of Morakert's membership and revenues and its quick demise following the above chain of events. For more detailed financial statement and indicators please see Appendix M.

Table 7. Evolution of Morakert membership and revenues.

YEAR	MEMBERS	NET REVENUES (HUF mio)
1998	59	251
1999	131	568
2000	189	1,250
2001	288	1,587
2002	289	2,283
2003	476	3,777
2004	630	4,641
2005	699	5,840
2006	730	8,222
2007	n/a	5,162
2008	n/a	4,712
2009	776	Approx. 2,000
2010	670	566

Sources: Bakucs, et.al. 2007 (up to 2005) and author research.

The quick and unexpected downfall of Morakert, the showcase of smallholder collective action and cooperative success not only in Hungary but also internationally, illustrates some of the disadvantages of the cooperative structure and governance and the power of collective identity in POs, especially in large POs.

4.1.4.2 Del-Alfoldi Kerteszek Cooperative (DelkerTESZ)

DelkerTESZ took over from Morakert as the largest PO in Hungary after the latter's decline. DelkerTESZ was founded in 2002 with 237 members, headquartered in Szentes, 79 kilometers from Morahalom, in the Great Plains region of Hungary. It integrates 347 hectares, 136 of which covered with green houses and tunnels where participants carry out sustainable intensive production in most cases year around.

Delkertesz' largest member, Arpad Zrt, formerly Arpad Cooperative, had been involved with aggregating smallholders since 1960[12]. DelkerTESZ achieved formal PO status in 2004. Most of DelkerTESZ's members are small, with over 80% of members selling less than 4 million forints (approx. US$18,000) of value annually to DelkerTESZ, many selling less than 1 million forints in value. About half of DelkerTESZ' turnover originates from its largest member, Arpad Zrt[13], which play an important role in DelkerTESZ ability to plan and manage risks. The partnership with Arpad also plays an important role in providing

[12] Arpad used to be a cooperative but it is now a joint stock company; a member of DelkerTESZ, a cooperative, along with hundreds of small farmers.

[13] Zrt stands for closed joint stock company.

DelkerTESZ's smaller members advisory, technical and innovation support leveraging the activities and related research that it would carry out for its own, larger scale production regardless.

At the end of 2012 it had 504 members and its sales amounted to 5,947 million HUF for 2012 (approx. US$27 million), mostly via member activity. Non-member related revenues represented approx. 6% of sales. Interested producers have to deliver products to DelkerTESZ for a one year test period without any member benefits before they can be considered for membership (Szabo 2012).

DelkerTESZ and it members have focused on the production of Hungarian peppers 53%, tomatoes 17%, various other types of peppers 17%, cucumbers, watermelon, cabbages. This production profile has been more or less consistent with only minor variations over the years, with peppers and tomatoes being the primary products, representing over 80% of sales. Most of DelkerTESZ' members carry out production in glasshouses and plastic tunnels (Szabo 2012). DelkerTESZ provides various services to its members including collective input purchases, financing for inputs, extension services and agronomist advice and support with quality assurance systems and the

development of member farms. An industry expert interviewed for this study highlighted the importance of DelkerTESZ' relationship with its members as key to its success, stating that "DelkerTESZ' approach to its members was characterized by service and humility".

Over 50% of sales involved retailers in 2012. While the volume sold to retailers has been increasing over time (2012 sold 28% more to retailers than year before), as a ratio within total sales, retailer chains' share has been stable at slightly above 50% (2005: 51%). Exports have not been growing at pace of the cooperative's growth. Exports represented 18% of sales in 2012 compared to 24.5% in 2005. The balance was sold to other retail outlets and processors, in other words other modern market value chains. In fact almost 100% of DelkerTESZ' products are sold to modern markets, with only a very small negligible fraction sold to the traditional wholesale market. This is part of a diversification strategy for DelkerTESZ.

A unique feature of DelkerTESZ' model is the premium paid to farmers at the end of the year. Eligibility is determined, among others, based on quality, whether the farmer delivers 100% of the production to the cooperative,

participates in extension services and uses the recommended inputs and pesticides. This has proven to be a highly effective incentive scheme that led to biological pest control use rising from 16% to 87% of farmers between 2003 and 2012 (Szabo 2012). DelkerTESZ also takes sanctions seriously: 11 farmers were excluded in 2012 for non-compliance.

DelkerTESZ was one of the early adopters of technological innovations among Hungarian POs. In 2007 it introduced a bar code based traceability system, in addition to 4000 square meters of cold storage, a 2500 m2 climate controlled packaging area, state of the art sorting and packing lines, and information management systems.

Research and development has been integral to DelkerTESZ' history. Arpad built strong collaborations with relevant professional and research organizations and universities. It carefully selects the varieties it grows and instructs farmers to grow. It has been core to its business model to build a strong advisory team to work with farmers, in fact it is mandatory for DelkerTESZ members to use the advisory services. In order to comply with the strict requirements of the retailers, DelkerTESZ also implemented a monitoring system

to supervise members' use of pesticides. A key objective of DelkerTESZ is ongoing development and accordingly it encourages its members to continuously modernize and improve their agricultural practices, in particular in the area of integrated crop management, new varieties and the use of biological pesticides. Its focus is on minimizing the environmental burden of agriculture while improving quality, productivity and competitiveness. As part of this effort it carries out regular soil and water tests and develops the formula for plant protection to ensure minimal and optimal fertilizer use. It regularly communicates these recommendations to members and 3-4 times during the winter it offers classes on better farming practices. The advisory and training activities also include helping members comply with GlobalGAP.

DelkerTESZ trademarked "Peppers from Szentes" which is added as a label to the packaging. Over the past decade DelkerTESZ moved from selling only 10-15% of its products in packaged format to over 75% in 2012. Packaging is an important value added service that DelkerTESZ provides to its members but the brand developed helps build pride among members. While DelkerTESZ's fixed asset investments are only about a third of what Morakert had in its prime

days, it does maintain a community building for member activities. Arpad and Morakert also support local community events such as sport games. This was in fact also reinforced by Dr. Miklos Csikai, President of Arpad, in an interview with a local TV station, where he explained that their priorities were to support local community events as opposed to national ones.

DelkerTESZ is regularly represented at domestic and international agricultural and food fairs to stay abreast of the latest market developments and to promote awareness of its products. It has also been winning awards and gaining recognition for its products at such events, enhancing the recognition and reputation of its brand and producers. It also partners with retailers for special initiatives such as "Tradition and Taste" and others showcasing traditional Hungarian varieties (Szabo 2012).

DelkerTESZ has its own store where it sells inputs needed by its members. It also extends interest-free credit for input purchases to all of its members (100 days term).

DelkerTESZ uses contracts with its members. Producers commit to a minimum amount that they have to supply. Violation of that can lead to the

exclusion of a member (a right that DelkerTESZ has been exercising in contrast with other POs). Other forms of risk mitigation that DelkerTESZ can leverage in its ability to meet its own obligations to retailers and processors are the significant production volume from Arpad that is exclusively sold via DelkerTESZ and the high proportion of intensive and greenhouse/tunnel based production.

DelkerTESZ' bookkeeping is very transparent with the intention of making it easy for members to understand the cooperative's finances.

DelkerTESZ initiated the establishment of Hortico-Regio Ltd., a secondary PO, in 2009 in partnership with 3 other POs as well one jointly with Morakert for export activities. DelkerTESZ was also a founding member of TESZ-ESZ Nonprofit Ltd, a secondary PO focused on training and research.

DelkerTESZ maintains good relationship with two commercial banks. A sign of its bankability is the fact that neither bank cut DelkerTESZ credit limits during the economic crisis which enabled DelkerTESZ to maintain its revenues during those years (Szabo 2012). Nonetheless, the lack of financing is the most serious obstacle faced by DelkerTESZ when it comes to its further development,

including the ongoing access to value chain finance necessary to pay its members well before the PO gets paid from its buyers (Szabo 2012). (Please see Appendix N for Delkertesz' financial indicators).

The DelkerTESZ case illustrates some of the advantages of non-cooperative PO structure and governance, in particular from the perspective of sanctioning free-riding and mitigating market risks. The case further highlights the importance of services offered by POs, the importance of access to finance and the power of collective identity supporting PO activities ("Collective identity activities" or "CIA").

4.1.4.3 Comparative Analysis of Morakert and DelkerTESZ

Both of the POs covered in the case study analysis had access to GVC, including retailers and processors. For both POs retailers represented the largest market channel. Despite the fact that the two POs analyzed are the largest in Hungary, they nonetheless have little influence on the terms of the contracts. Retailers sign framework agreements with POs with contract terms being fixed only a week or two prior to delivery. While Morakert nonetheless sold the

majority of its products via retailers, DelkerTESZ had a more careful diversification strategy which involved various market channels and sales of to retailers kept at approx. 50%.

Morakert was a cooperative with limited market certainty and strong alignment of incentives among PO participants. DelkerTESZ is a symbiotic hybrid with medium degree of market certainty and medium alignment of incentives since Arpad, a mid size producer, is a producing member of the cooperative (i.e. nucleus model with one large and many small producers) while the Arpad group also serves as a partner to the DelkerTESZ cooperative.

Morakert's heavy reliance on retail contracts that required significant contract size and on-time delivery, in combination with its cooperative governance, made it difficult to sanction the side-selling activities that were so prevalent among Morakert members, especially given the cooperative's practice of significant sourcing from non-members (threatening sanctions would have risked member exit while still able to sell to PO as non-members, an issue several Hungarian POs are struggling with).

DelkerTESZ, jointly with Arpad, provides the full range of PO services to its members and is selective about taking new members (testing period with no member benefits), helping to not only ensure the quality and quantity of production but also reinforcing farmer discipline and minimize opportunistic behavior and side-selling. Morakert, on the other hand, offered somewhat more limited services to its members and the significant ongoing sourcing activity from non-members undermined the value associated with membership. (In fact based on farmer interviews, farmers considered Morakert as a market option whereby they would make weekly decisions on whether to sell some of their crops to Morakert, similar to how they regarded the local traders.) In the case of DelkerTESZ, in contrast, membership resembles more of a "club good" which is made possible by its hybrid character and comprehensive sophisticated services provided.

The combination of DelkerTESZ's branding, commitment to environmentally sustainable and high quality production as well as ongoing innovation, sponsorship of local community events and "club good" approach to membership created a collective identity that DelkerTESZ and Arpad leaderships

reinforce on an ongoing basis through website communication, international exhibitions, awards, interviews, etc. Morakert, on the other hand, also fostered a collective identity as the "Hungarian producer" which very much resonated with both producers and consumers. However this one-prong identity strategy did not build well on the true strengths of the PO given that it had limited year-around production capacity and relied on significant imports in its operations.

4.1.5 Study of the 47 Hungarian Producer Organizations

The purpose of this section is to test the hypothesis outlined using mixed methods on the population of Hungarian POs.

4.1.5.1 Data on the 47 Hungarian POs

The list of all Producer Organizations ("POs") that were qualified by the Hungarian Ministry of Rural Development as such as of April 2013 was obtained from the Hungarian government's website. Information about each of these POs was obtained via interviews and a database that includes financial information on most POs. Additional interviews were carried out with government officials, development professionals, NGO representatives, farmers, traders and lead firms.

4.1.5.2 Background on Hungarian Producer Organizations

Under a supportive policy framework, producer groups have been formed in Hungary since the late 1990. Those that meet the criteria outlined in Appendix J are recognized officially as a "producer organization" or PO. Table 8

summarizes the evolution of the number of recognized POs in Hungary. The number of POs have remained relatively stable over the last few years with 42-43 recognized POs in the country.

Table 8. Key statistics of PO formation

Approved EOPs	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	EARLY CHALLENGES				JOINING EU		CONSOLIDATION				STAGNATION				
Total	0	0	0	1	1	8	7	7	9	11	33	48	42	43	42
New approval	0	0	1	0	7	0	0	2	3	22	15	1	1	2	n/a
Cancelled approvals	0	0	0	0	0	1	0	0	1	0	0	7	0	2	n/a

Source: Author prepared and updated based on Dudas et.al. 2013 and governmental sources

After early challenges, the EU accession and resulting financial incentives provided a boost to the formation of POs. A 2008 EU legislation imposed a five year limit on temporary "producer groups," farmer groups that were working towards achieving PO recognition, starting April 2009. This resulted in a wave of mergers among those smaller producer groups in 2008 and 2009 leading to the formation of 37 new POs (Dudas et.al. 2013). The number of producers involved in POs have remained low ranging between the low 4,000s and 14,000s over the years and have been declining since 2009 even though the number of POs have slightly increased. According to interviews carried out for this study, this

reduction is widely attributed to the smallest producers withdrawing from POs. This trend is well reflected in both the average membership declining from its high of 1,348 member per PO to 285 in 2012 and in the average land size cultivated by PO members steadily increasing from its low of 0.71 hectares (1.8 acre) per producer in 2005 to 2.34 hectares (5.78 acre) in 2012. Nonetheless, the average land area per PO has declined considerably from its high of 1,552 hectares in 2004 to 667 in 2012 due to move towards higher intensity production. These figures underestimate cultivated land size because they do not capture the non-PO land cultivated alongside the growing number of hybrid POs and non-member producers that POs purchase from. Nonetheless, the trend is clear that the average size of PO members is increasing, a fact also highlighted by several interviews.

Table 9. Evolution of PO membership in Hungary

	2004	2005	2006	2007	2008	2009	2010	2011	2012
NUMBER OF RECOGNIZED POs	4	4	4	6	8	40	40	42	44
TOTAL MEMBERS	4,513	5,394	4,313	4,191	4,178	14,253	12,984	13,091	12,531
AVERAGE MEMBER	1,128	1,348	1,078	698	522	356	324	312	285
TOTAL LAND AREA	6,208	3,856	3,933	6,242	5,538	33,418	27,279	29,634	29,354
AVERAGE LAND AREA	1,552	964	983	1,040	692	835	682	706	667
TOTAL AREA / MEMBER	1.38	0.71	0.91	1.49	1.33	2.34	2.10	2.26	2.34

The data collected on the Hungarian aggregators include 20 cooperatives, 14 investor-owned firms (IOFs) and 8 hybrids. 32 of them are certified, i.e. their compliance with lead firm required food safety and other standards is third party verified. [14] 17 of the POs export at least 10% of their products and 31 sell to modern value chains.

A database was developed with information about all of the 42 approved POs with an attempt to collect as much information as possible to enable the

[14] As described in more detail in Section ?, certification is costly for producers, especially smallholders due to the fixed cost involved, but it reduces the transaction cost of doing business with smallholders for other value chain actors and thus may enhance smallholders' ability to access modern markets.

analysis of different PO types and their ability to scale and do business with modern markets and GVCs. The variables available are summarized below.

Age: age of organization, in years

Sector: Subsectors within fruits and vegetables that the PO is operating in

Members09 (number of members in 2009) and members12 (number of members in 2012)

Corpdummy: dummy variable with value of 1 if organization is IOF

Hybriddummy: dummy variable with value of 1 if hybrid organization

Hectarvfm: land area under cultivation by the members of the organization

Collective identity: dummy variable for collective identity activities (CIA) provided.

Rdinnov: dummy variable for research & development and innovation related services.

Collective services: dummy variable for collective services offered such as collective input purchase for improved negotiating power, collective equipment and machinery use, etc..

Educinfoext: dummy variable for educational, information or extension services provided

Valueadded: dummy variable for value added services provided

Finance: dummy variable for financial services provided

Export: dummy for export of more than 10% of revenues

Certification: dummy for PO trading in certified products

Std: short term liabilities of the organization (lnstd: natural log of std)

GVC: dummy variable with value 1 if organization has modern market access (either exporting or supplying international retail chain domestically)

Sales: 2012 sales revenues (lnsales: natural log of sales); also available for 2009-12

Salespermember: 2012 sales revenues divided by number of member (lnsalespermember: natural log of salespermember)

Assets: total assets (available for 2009-12)

Std: current liabilities (available for 2009-12)

Ltd: long term liabilities (available for 2009-12)

FixedAssets: Value of fixed assets net of amortization

(available for 2009-12)

Member: number of members

Memberch: percentage change in the number of members between 2009 and 2012.

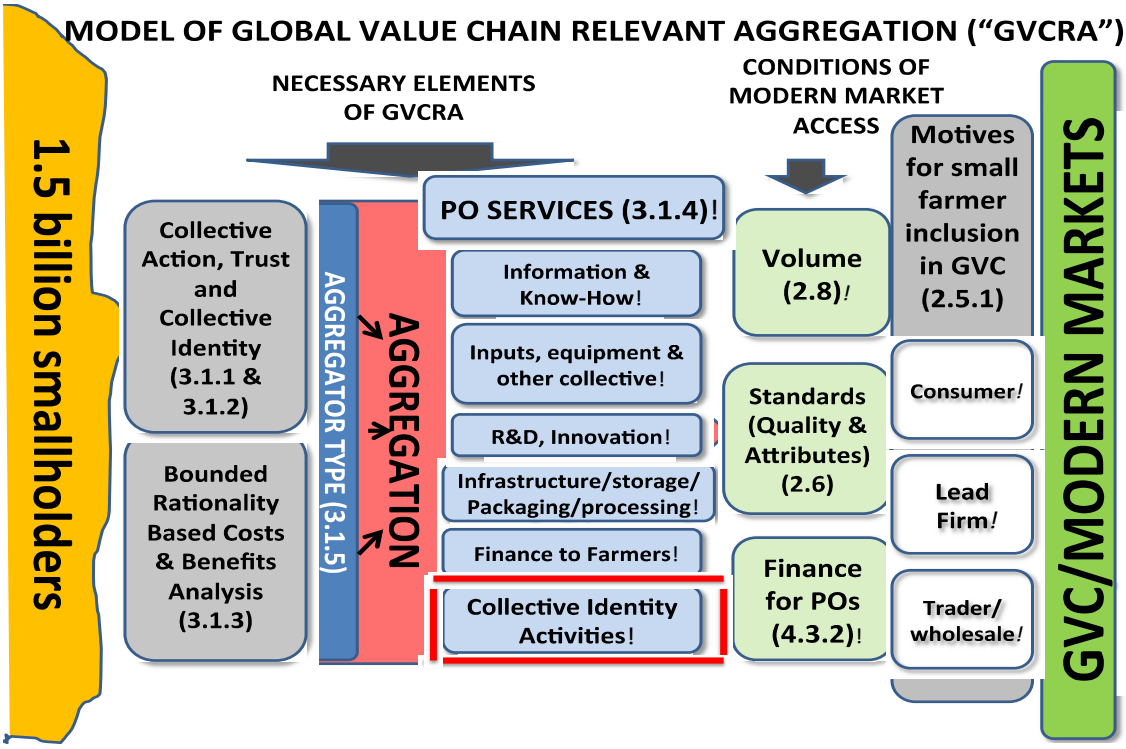
Those used in the analysis are the following:

Highservice: Dummy variable for POs that offer services in 4 or more of the service categories.

In addition, various ratios were calculated based on the above variables and tested in the models. For the sources of information and more detail, please see Appendix O.

4.1.5.3 Analysis and discussion.

Hypothesis 1: "collective identity narratives", manifesting themselves in Collective Identity Activities, play an important role in facilitating the growth and competitiveness of POs.



Copy of the GVCRA model proposed in section 3, with the component under discussion ("Collective Identity Activities") highlighted

Ten of the Hungarian POs have been found to offer collective identity activities or CIA' (see 4.1.4.2). CIAs include activities that foster the PO's collective identity and/or members identification with the collective identity.

Examples of collective identity building activities may include sponsorship of local community events and organizations, including support for youth groups and sport teams, projects and activities (including demonstration projects and awareness raising) that elevate the status of food production and farming and participation in or organization of professional events that highlight the benefits of certain production methods practiced by the PO (for example sustainable or organic, sustainable intensification, use of renewable energy, etc.). PO activities that help foster members' identification with the collective identity include activities and events organized for member such as lectures, study tours and PO celebrations (harvest, awards, etc).

Table 7 summarizes the key statistics for POs with and without such services. POs not offering CIA don't differ considerably from their CIA offering counterparts in terms of long term financing. Every other indicator, however, is more favorable for POs with CIA from the perspective of scale.

CIA POs on average have 419 members (median of 317), cultivate on average 956 hectares, have average sales of $6.5 million (median of $4.8 million), with average sales per member of $35,000 and sales per hectare of $15,000 and average fixed asset of $2.3 million. Their sales grew on average by 100% between

2008 and 2012 and their assets by 145%. They offer on average 4 services to their members (median of 5), 90% have certification and 70% export.

This is in contrast with non-CIA POs that have on average 251 members (median of 90), cultivate on average 615 hectares with average sales of $3.2 million (median of $2.0 million), with average per member sale of $32,000, sales per hectare of $6,000 and average fixed asset of $1.9 million. Their sales grew on average by 37% between 2008 and 2012 and their assets by 5%. They offer on average 3 services to their members (median of 3), 72% have certification and 31% export.

This is despite the fact that the average (and median) size of CIOS POs' members was slightly smaller than their non-CIOS counterparts'.

Table 10. Summary statistics based on collective identity activities offered

	COUNT	AGE	MEMBERS	SERVICES	HEKTAR/ MEMBER	TOTAL HEKTAR	EXPORT	CERTIFI-CATION	SALES	SALES PER MEMBER	SALES PER HECTAR	ASSET GROWTH	SALES GROWTH	LONG TERM DEBT	SHORT TERM DEBT	FIXED ASSETS
POs WITHOUT COLLECTIVE IDENTITY ENHANCING SERVICES																
total	32		8,039		186.95	19,672	10	23								
average		11	251	3	5.84	615	31%	72%	3,151	32	6	0.05	0.37	491	1,301	1,878
min		4	20	1	0.21	86			621	2	2	-0.37	-0.72	0	8	5
max		15	2,900	6	16.82	2,592			14,470	151	16	0.86	3.81	1,850	6,861	11,180
median		11	90	3	4.76	520			1,962	26	4	-0.02	0.21	319	796	984
POs WITHOUT COLLECTIVE IDENTITY ENHANCING SERVICES																
total	10		16,380		277.26	35,774	7	9								
average		11	419	4	4.90	956	70%	90%	6,516	35	15	1.45	1.00	471	2,162	2,318
min		6	23	2	0.17	155			970	2	1	-0.26	-0.72	0	507	0
max		15	1,480	7	11.09	3,271			26,972	84	57	7.60	8.56	1,756	4,585	9,403
median		12	317	5	4.34	601			4,779	30	10	0.26	0.28	324	2,133	1,454

To further analyze the role of CIA on scaling, change in the POs' membership between 2009 and 2012 was used as independent variable. While the core model illustrated the importance of high PO services for membership growth while R&D / innovation related services and collective identity activities (CIA) were significant in the full model, CIA loses considerably from its significance when "collective services" are introduced at least in part due to the correlation of these variables (correlation coefficient of 0.4258). It is not surprising that POs with emphasis on collective identity also are more likely to provide collective services

to their members, or that POs that provide collective services are more likely to have CIA. Therefore another model was devised to study CIA. Salesperhectar, the amount of sales generated by a PO on average for each hectare of land under its coordination, is being used as an indicator of the PO's productivity and competitiveness.

DV: SALESPERHECTAR	Coefficient (P>|t|)	Coefficient (P>|t|)	Coefficient (P>|t|)
High_service	6.277479 (0.02)		
Rdinnov		3.010025 (0.106)	4.264453 (0.064)
Valueadded			2.699485 (0.222)
Collective identity (CIA)		7.804794 (0.001)	8.644008 (0.004)
Collective			-2.676224 ((0.326)
Educinfoext			0.8878115 (0.747)
Finance		16.74853 (0.000)	16.29008 (0.000)
Members			0.0013813 (0.67)
Lnhectarmember	-3.176881 (0.010)	-2.088662 (0.014)	-1.937501 (0.16)
Hectarvfm	-0.0043848 (0.049)	-0.0081959 (0.000)	-0.0075671 (0.001)
Coopdummy			-1.483663 (0.514)
Lnstd	1.759846 (0.114)		-0.8748759 (0.59)
Ltd11			-0.0045728 (0.106)
Lnfixa11			1.880414 (0.287)
Constant	0.7896838 (0.918)	11.38897 (0.000)	4.750888 (0.569)
R-squared (Adjusted R-squared)	0.4020 (0.3374)	0.7419 (0.7060)	0.7805 (0.6748)

The core model reflects a significant positive relationship between PO services and competitiveness. It also shows a reasonably strong relationship between short term financing available to the PO and it competitiveness. Somewhat counterintuitive is the significantly negative relationship between PO

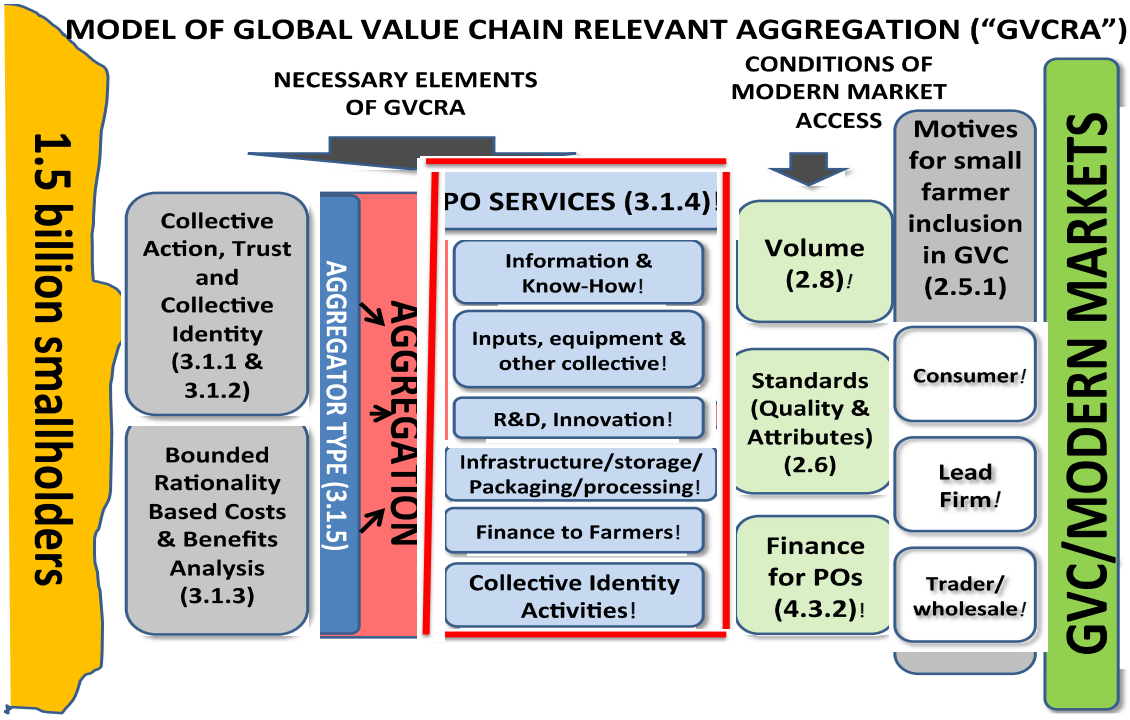
competitiveness and the total land area coordinated by the PO and the average land area cultivated per member. The same variables had significant positive relationship with level of PO sales but not with modern market access. This finding suggests that smaller farms and smaller POs have higher productivity. This may be the case since many of the smaller size producers, and smaller size POs, that managed to stay in business and maintain their EU PO certification are engaged in intensive agricultural production involving irrigation and green houses/tunnels that help both improve productivity and manage risks.

Moving to the full model it becomes clear that once again some PO services are more closely associated than others with the productivity/competitiveness of POs. The significant ones are R&D and innovation, CIA and finance. With PO finance to producers entering the model, short term debt loses significance since it is short term borrowing at the PO level that permits the PO's lending to its members. A similar relationship cannot be observed in the case of long term finance because it is only one out of the 42 POs that reported long term lending to its members for the installation of green houses. PO members need to secure the long term financing necessary for such

investment outside the PO and therefore the effect of that won't be visible in our data.

CIA has a highly statistically significant relationship with productivity/competitiveness and in this case continues to be highly significant even in the full model after the introduction of collective services and other theoretically relevant variables.

Hypothesis 2: Services, including access to financing for farmers, provided by POs play an important role in facilitating scaling.



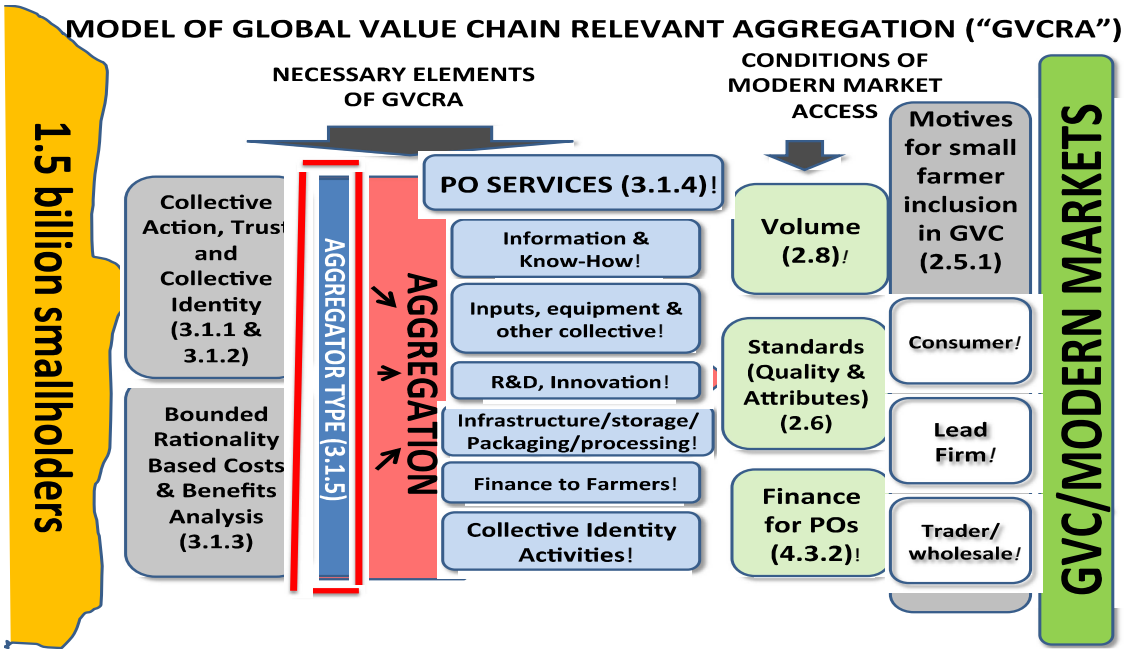
Copy of the GVCRA model proposed in Section 3, with the component under discussion ("PO Services") highlighted.

In this section Hypothesis 2 will be tested; to study the relationship between the scale of POs and the services they offer using an OLS regression.

Sales revenues of POs are used as a measure of their scale. The model below illustrates that PO provision of four or more services (Highservice), coordination of larger production area as a function of farmers aggregated (members12) and average farm size cultivated by members (hectarmember), provision of financing to PO members (finance) and PO type (whether it is a cooperative or not) explain more than half of the variation in POs' sales. Services are key to helping farmers improve their productivity, manage their risk and therefore reduce their losses and meet the standards and other requirements of modern value chains and achieving relevant certifications. Both high_services and finance are highly statistically significant in the model with positive coefficients. In addition, the dummy variable for cooperative PO form is also significant in the model (at p<=0.1) suggesting that the cooperative form is associated with lower sales volume.

OLS Regression		
DV: LN(SALES)	Coefficient (P>|t|)	Coefficient (P>|t|)
Highservice	0.4350156 (0.028)	0.3765647 (0.06)
Lnmembers12	0.3229318 (0.007)	0.2739208 (0.03)
Age		0.058754 (0.148)
finance	0.9021322 (0.003)	0.8909062 (0.003)
Lnstd (short term debt)		0.0691608 (0.410)
hectarmember	0.068057 (0.040)	0.0579677 (0.088)
Coopdummy	-0.322989 (0.090)	-0.277841 (0.179)
Constant	5.791782 (0.000)	4.961812 (0.000)
R-squared (Adjusted R-squared)	0.5749 (0.5159)	0.6068 (0.5259)

Hypothesis 3: Cooperatives are at a disadvantage compared to other PO forms in achieving the conditions necessary for GVC access.



Copy of the GVCRA model proposed in Section 3, with the component under discussion ("Aggregator Type") highlighted.

Over a half of Hungarian POs operate as cooperatives. This ratio has been declining. A few years ago most POs were established and operated as pure cooperatives but in recent years several new POs were established as investor-owned firms (IOFs) or converted from cooperative to IOF form. In addition, hybrid POs have been emerging that combine the cooperative and IOF forms

(often one owning the other or the two operating in close partnership). When POs that converted from cooperative to IOFs are excluded, IOFs tend to be younger in terms of their operational history than cooperatives and hybrids.

Table 8 summarizes some of the key statistics for the three PO types. On average IOFs engage with the least number of farmers while cooperatives with the largest number. However, this is due to two outliers. The median number of participants is 90 for cooperatives, compared to 131 for hybrids and 106 for IOFs.

While average farmer size does not differ much by PO type (6 hectares for cooperatives, 5.3 for IOF and 5 for hybrids), median participant farm size was largest in the case of cooperatives (6 hectares), followed by hybrids (4.8) and IOFs (4.5). IOFs, however, did not engage with farmers cultivating less than two hectares while farmers cultivating as little as 0.17 hectares were members of some of the cooperatives. In the case of hybrids, the smallest farm size was around one hectare.

Income and efficiency indicators were the weakest for cooperatives both in terms of median sales as well as sales per farmer and sales per hectare and hybrids' were the strongest among the three groups.

Working with larger and more sophisticated producers, IOFs offer fewer services than their counterparts. IOFs have the highest fixed assets and debt, both short term and long term, among the 3 PO forms, followed by hybrids. Cooperatives have the least assets and financing among the three groups.

Table 11. Characteristics of Hungarian POs by PO type

COOPs (N=20)	Farmers	Age	Sales	Sales/ Farmer	Fixed Assets	Short Term Debt	Long Term Debt	Services offered	Hectares	Hectares / farmer
Average	397	12	3,161	29	994	964	325	3.45	674	6.07
Minimum	27	6	621	2	5	8	0	1	86	0.17
Maximum	2,900	15	9,493	130	3,333	2,955	1,341	5	3,271	16.82
Median	90	11	2,101	18	818	653	156	3.5	479	6
HYBRIDs (N=8)	Farmers	Age	Sales	Sales/ Farmer	Fixed Assets	Short Term Debt	Long Term Debt	Services offered	Hectares	Hectares/ farmer
Average	204	12	7,592	49	1,537	1,299	389	3.75	740	5.01
Minimum	20	4	1,216	10	564	161	76	1	146	0.94
Maximum	560	15	26,972	151	4,056	4,178	948	7	2,592	9.21
Median	131	12	3,558	35	933	791	330	4	492	4.76
IOFs (N=14)	Farmers	Age	Sales	Sales/ Farmer	Fixed Assets	Short Term Debt	Long Term Debt	Services offered	Hectares	Hectares/ farmer
Average	190	11	3,002	30	3,650	2,399	772	2.86	703	5.31
Minimum	23	6	825	2	718	481	0	1	155	2.08
Maximum	617	15	6,640	84	11,180	6,1	1850	6	1,715	9.84
Median	106	11	2,447	26	2,829	1,504	652	3	598	4.5

The univariate analysis of variance (Anova) confirms the statistical significance of these relationships, as summarized in the table below.

Table 12. Summary of statistically significant ANOVA results

(statistical significance level of 0.1)

Independent Variable in ANOVA test against PO form	**Prob>F**	**Pairwise comparison of means: Contrast (Tukey P>|t|)**	**Interpretation**
Sales	0.0609	hybrid vs. coop: 3,917.6 (0.074) IOE vs. coop: -156.9 (0.994) IOE vs. hybrid: -4,074.5 (0.088)	Hybrids have significantly higher sales than either cooperatives or IOEs. There is no statistically significant difference between the sales of cooperatives and IOEs.
Long term debt	0.0298	hybrid vs. coop: 91.2154 (0.880) IOE vs. coop 457.2053 (0.025) IOE vs. hybrid: 365.9899 (0.185)	Cooperatives have significantly less long term financing than IOEs
Short term debt	0.0087	hybrid vs. coop: 272.319 (0.874) IOE vs. coop 1,563. 3 (0.007) IOE vs. hybrid: 1,290.98 (0.088)	Cooperatives and hybrids have significantly less short term financing than IOEs
Fixed Assets	0.0007	hybrid vs. coop: 511.44 (0.790) IOE vs. coop 2,840.71 (0.001) IOE vs. hybrid: 2,329.27 (0.023)	IOEs have significantly more fixed assets than either cooperatives or hybrids

As Table 12 illustrates, hybrids offer the most services to their farmers. All hybrids have modern value chain access in contrast with 60% of coops, which is the lowest rate among the PO types, and 79% of IOFs. Coops also have the lowest rate of certification. This is despite the high rate of services among coops which is comparable to hybrids, in contrast with IOFs which on average offer fewer services. Among the services the biggest difference is in financing offered to farmers; 38% of the hybrids offer such services in contrast with 7% of IOFs and none of the cooperatives.

Table 13. Additional Characteristics of Hungarian POs by PO type

	FOCU S CROP	SUSTAINABLE PRODUCTION	MARKETING	COLLECTIVE SERVICES (INPUT, SHARED EQUIPMENT)	EDUCATION/INFORMATION/EXTENSION/ADVISORY	RESEARCH / DEVELOPMENT / INNOVATION	VALUE ADDED ACTIVITIES	COLLECTIVE IDENTITY FORMING ACTIVITIES	FINANCE	EXPORT	MODERN VALUE CHAIN ACCESS	CERTIFICATION
COOPs	35%	35%	100%	55%	85%	35%	40%	30%	0%	40%	60%	70%
HYBRIDs	50%	88%	100%	63%	88%	25%	38%	25%	38%	38%	100%	88%
IOFs	36%	21%	100%	29%	43%	36%	57%	14%	7%	43%	79%	79%

It is very hard to tell to what extent the characteristics of Hungarian PO types are universal as opposed to Hungary specific as the author is not aware of

similar analysis in the existing literature nor data to permit such analysis.[15] However, some of the patterns observed for the Hungarian POs are similar to those observed for the Central American and Peruvian POs in Section 4.

Statistical testing was applied on this data to compare the three PO types in the form of multivariate analysis of variance (MANOVA) since MANOVA can be used to compare multivariate population means of multiple groups.

A multivariate analysis of variance (MANOVA) results in an outcome consistent with the findings of the previous section: PO form (i.e. cooperative, Hybrid and IOE) have a significant impact on the key variables used in this analysis (sales, sales per member, size of membership, change in membership between 2009 and 2012, total number of services offered, total hectares cultivated by PO, average hectares per member, exports, modern value chain access, certification, sales growth between 2009 and 2012, long term debt, short term debt and value of fixed assets); with $Pr > F$ values of 0.0906 (Wilks' Lambda),

[15] Even creating a database similar to what was done for Hungary is impossible in most countries in the absence of the policy framework that helps to ensure the identification of IOF and hybrid POs. For example in most databases or countries IOF that source from smallholders are impossible to identify, and would be grouped together with small and medium enterprises (SMEs). Furthermore, for the time being the World Bank enterprise survey, which is one of the few databases that collects information in SMEs, excludes agricultural SMEs. However, the author of this paper has been advised (source: phone discussion with relevant World Bank staff) that a separate database of agricultural SMEs may be planned for the future, in which case it would be highly advisable to include smallholder specific variables.

0.0801 (Pillai's Trace), 0.1110 (Hotelling-Lawley Trace) and 0.0425 (Roy's Greatest Root). The statistical significance improves further when comparing only cooperatives and IOEs with regards to the above key variables, to Pr > F of 0.0546. Comparing cooperatives with the combined groups of hybrids and IOEs result in Pr>F of 0.1085.

Overall, we can conclude that the form of a PO, and in particular whether the PO is a cooperatives, have an effect on key variables that directly or indirectly influence modern market access.

4.2 Central America and Peru

4.2.1 Background

The intention of this section is to investigate whether patterns and relationships observed in the Hungarian empirical analysis, and thus ultimately the model of GVC relevant aggregation, also holds in other countries. However data is scarce at best about POs, especially non-cooperative POs. (In fact it was not possible to identify any systematic data collection about smallholders' POs). This section will utilize the best non-EU data on smallholders' aggregators available to the author. However, the data has considerable limitations that will be discussed.

The data analyzed in this chapter involves aggregators of coffee and horticultural producers in Honduras, Costa Rica, Nicaragua and Peru. This region is particularly appealing for this analysis because of the stronger tradition of POs than in Hungary. Coffee is the top export crop in these countries and smallholders are responsible for a significant portion of the production; thus the majority of the aggregators are coffee producers but with horticulture rising in importance and also represented in the data.

4.2.2 Data collection and method

Data was provided by the Finance Alliance for Sustainable Trade, an NGO based in Montreal, Canada that serves as the membership organization for lenders that extend financing to aggregators of smallholder farmers. FAST's members provide financing to aggregators that source from smallholder farmers in less developed countries. The uniqueness of FAST's approach that it is not limited to cooperatives but rather supports all forms of aggregators that source from smallholder farmers. This is consistent with the aggregator definition used in the case of the Hungary empirical section.

Data was provided on 60 first level aggregators in Honduras, Costa Rica, Nicaragua and Peru that attended FAST organized financial marketplaces with the aim of obtaining financing from FAST members. The data was collected by FAST staff prior to the marketplaces. Interested aggregators of smallholders fill out FAST's form (see Appendix P) based on which FAST invites those to the marketplace that meet a set of criteria. The criteria includes that the (i) aggregator has to be formally registered (as opposed to operating informally); (ii) needs to be willing to have financial statements and able to provide a reasonable

amount of background information and (iii) needs to have some minimal level of operation.

The forms for several of the 60 aggregators lacked some of the basic information necessary for my analysis (they were only partially filled out), such as sales, number of members, short term borrowing, and form of aggregator (company or cooperative) and whether it exports or has contracts with buyers. As a result, observations with less than 2 of the necessary variables for this analysis were eliminated, leaving 39 observations.

Similarly to the Hungarian data, this information is unique in that it includes aggregators based on the primary criteria whether they source from smallholder farmers and includes different forms of aggregators including cooperatives and investor owned firms (IOFs).

While this data has serious shortcomings in terms of completeness, the rationale to nonetheless use this data is to investigate whether it exhibits patterns similar to aggregators in Hungary and whether the model of GVCRA remains applicable.

Variables available in the dataset:

Members: number of members at the time the form was filled out

Age: Year of establishment

Certification: whether PO is certified and through which certification scheme

Corpdummy: dummy variable with value of 1 if IOF

Loanhistory: if aggregator has credit history

Sales; available for 3 years. (lnsales: natural log of sales)

Export: dummy to reflect whether the aggregator exports and where.

Contracts: dummy to reflect whether the aggregator has a contract with any buyer.

Export: dummy for export

clt: short term liabilities of the organization (lnclt: natural log of clt)

Assets: total assets (lnassets: natural log of assets)

Ltl (lnltl): long term liabilities (natural log long term liabilities)

fixassets: fixed assets (lnfixassets: natural log of fixed assets)

4.2.3 Analysis and discussion

The Central America/Peru data includes 9 IOFs and 30 cooperatives. 33 of these organizations are certified and twenty of them export its products. The POs in the sample have 573 members on average with a median of 200 (in the Hungarian data these figures are 266 and 93, respectively). The average PO in the sample is 17 years old with a median age of 15 years (average and median age of 11 years in the Hungarian sample), has average sales of $3.7 million and median of $1.5 million (in Hungary, average of $3.7 million and median of $2.1 million), average fixed assets of $2.6 million and median of $0. 5 million (in Hungary, $2.3 and $1.4 respectively). Please refer to Table 12 for more detail about the Central America/Peru sample.

Table 14. Summary statistics of aggregators in the Central America / Peru sample

US$	members	age	sales	fixed assets	assets	short term liabilities	long term liabilities
average	573	17	3,709,646	2,567,134	5,101,770	1,525,088	812,865
min	3	4	72,439	770	1,933	14,938	0
max	9,000	71	36,740,386	21,198,927	34,195,943	11,336,306	5,715,257
median	200	15	1,555,998	495,128	1,624,230	483,887	230,571

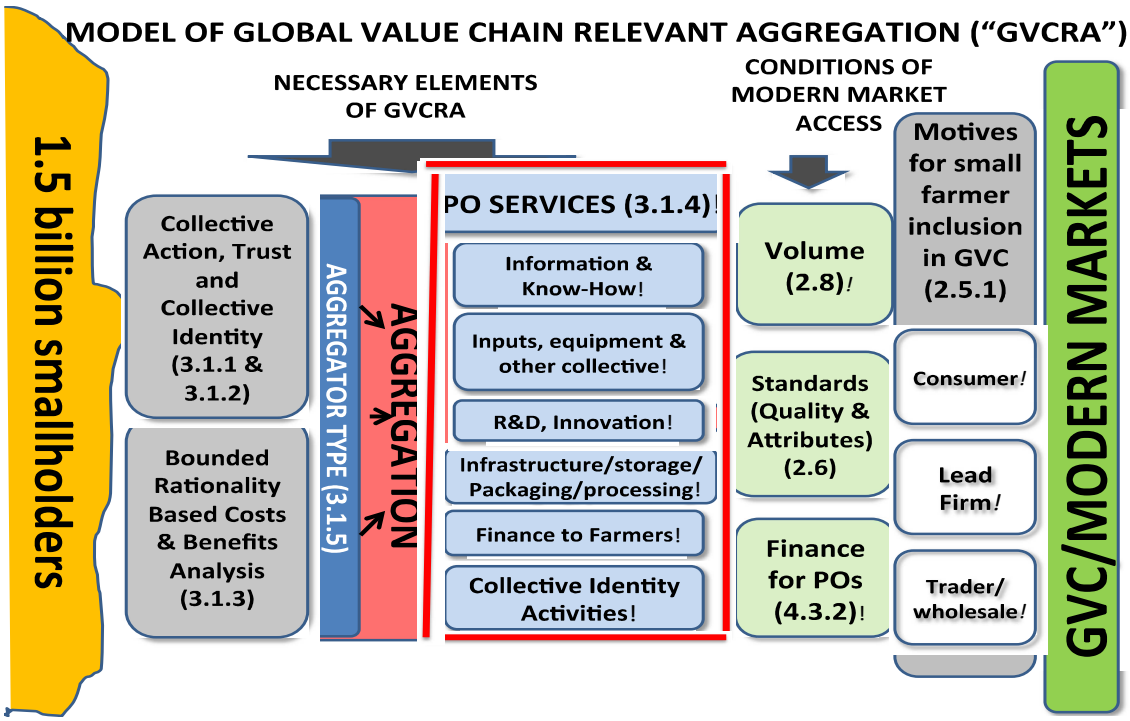
This analysis will test hypothesis as close to identical as possible with the hypothesis tested in the case of Hungary, unless the data is not adequate for a particular hypothesis test.

Hypothesis 1: "collective identity narratives", manifesting themselves in Collective Identity Activities, play an important role in facilitating the growth and competitiveness of POs.

The Central America/Peru data does not provide enough information to directly statistically test this hypothesis. However, interviews with PO officials and third party experts confirmed the importance of PO collective identity, in particular for fair trade POs. The interviewees indicated that farmers have high commitment to the ideals of fair trade and due to its origins and history. The fair trade POs in the Central America / Peru sample have on average nearly five times as many members as their non fair trade counterparts, significantly higher production, fixed assets and better net results. Overall, fair trade POs are considerably larger and have stronger performance than their non fair trade counterparts in the Central America/Peru sample. While there can be various reasons for that difference and unfortunately we don't have sufficient data to statistically test the

reasons, according to the interviewees the difference may be at least in part attributed to the high collective identity of fair trade POs.

Hypothesis 2: Services, including access to financing for farmers, provided by POs play an important role in facilitating scaling.



Copy of the GVCRA model proposed in Section 3, with the component under discussion ("PO Services") highlighted.

In case of the Central America/Peru, we have no information about the services the POs provide to their members, therefore the focus will be on access to finance in this analysis.

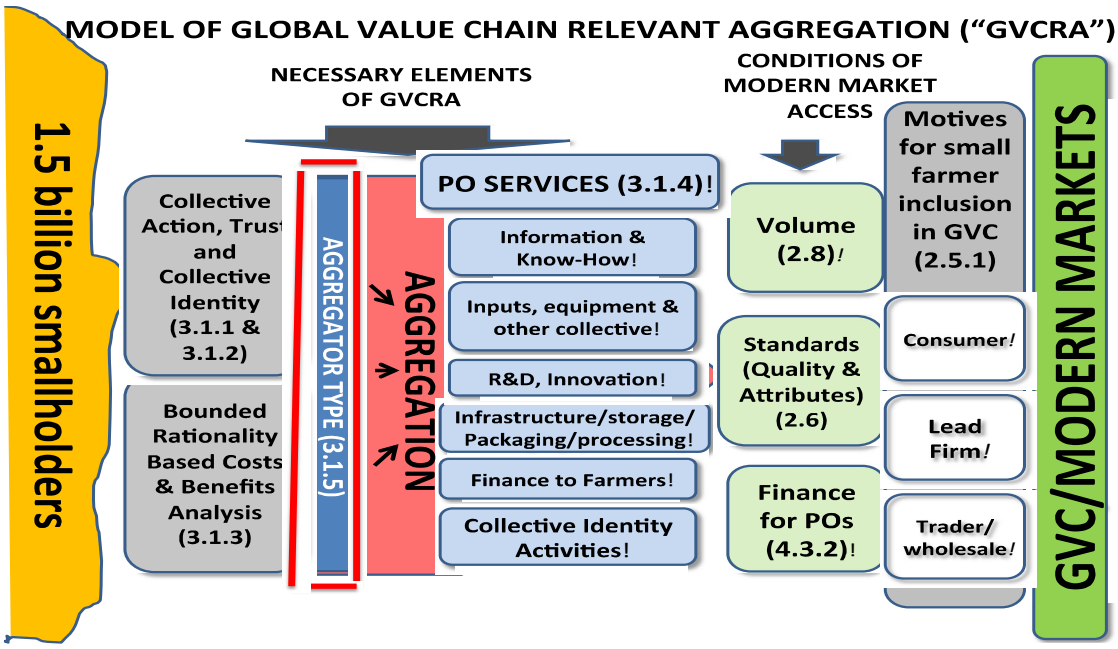
OLS Regression		
DV: LN(SALES)	Coefficient (P>|t|)	Coefficient (P>|t|)
lnclt (short term funding)*	0.461092 (0.003)	0.7081106 (0.000)
Llnltl (long term funding)	0.4180409 (0.015)	0.4070858 (0.020)
Age*		-0.0235334 (0.159)
Lnmembers*		-0.2506824 (0.134)
Certification*		-0.1065295 (0.852)
Corpdummy*		-0.0315659 (0.96)
Constant	2.717658 (0.205)	1.692153 (0.471)
R-squared (Adjusted R-squared)	0.6559 (0.6177)	0.789 (0.6916)

*variables in common with Hungarian Lnsales model.

The results show strong statistical significance and positive relationship between sales and both short term and long term financing; and variation in short term and long term financing together explain over 60% of the variation in sales. However, causality cannot be derived from these results and the data does not facilitate longitudinal analysis or the use of lagged variables. Social lenders, however, who are frequently the first ever lenders to POs, attest that such access to financing is crucial for the growth of POs.[16]

[16] Interview evidence with former CEO of Verde Ventures, a social lender very active in financing coffee and horticulture POs in the sample countries.

Hypothesis 3: Cooperatives are at a disadvantage compared to other PO forms in achieving the conditions of global value chain access.



Copy of the GVCRA model proposed in Section 3, with the component under discussion ("Aggregator Type") highlighted.

Investor owned firms (IOFs) are younger in the sample and tend to have fewer farmers than cooperatives, just like in the case of the Hungarian POs. 83% of the cooperatives are involved in coffee production while only 22% of IOFs. The majority of IOFs are fruit and vegetable producers. While the average sale of IOFs is $2.2 million compared to $4.2 for cooperatives, once we control for

the sector difference it becomes clear that coffee producer IOFs have higher sales than coffee cooperatives just as fruit and vegetable IOF producers have higher sales than their cooperative counterparts. Furthermore, both IOF's median sales and average sale per member are more than twice that of cooperatives. (This may be due to the average cooperative member being smaller, something suggested by interviewees, but unfortunately we don't have sufficient data to verify.) IOFs in the Central American and Peruvian data also have higher average net income and assets. Cooperatives, just like in Hungary, may be at a disadvantage when it comes to generating scale in turnover, despite their larger membership and longer operating history.

Table 15. Summary statistics of cooperative and IOF POs in the Central America / Peru sample

	members	age	sales	Netincome	fixassets	Assets	Cash	clt	ltl	SE
COOPs										
average	691	19	4,186,066	138,225	2,144,884	4,447,359	580,075	1,556,379	943,880	331,187
min	5	4	72,439	-1,268,470	770	0	-10,040	14,938	0	1,106
max	9,000	71	36,740,386	3,465,623	21,198,927	34,195,943	11,559,933	11,336,306	5,715,257	1,996,500
coffee	773	19	4,005,247	208,630	2,075,248	4,282,502	559,814	1,351,470	871,944	277,126
non-coffee	380	13	359,628	-37,632	149,320	383,649	42,408	200,686	196,655	68,641
IOFs										
average	145	13	2,161,280	1,813,210	3,886,662	7,146,802	1,607,730	1,422,274	382,390	11,700,192
min	3	4	93,295	-7,045,873	172,235	228,365	104,972	66,334	0	10,000
max	433	21	4,397,320	13,587,950	17,318,000	28,617,130	8,120,177	5,198,827	1,019,753	47,089,532
coffee	240	26	4,624,221	7,259,327	3,341,764	7,908,434	1,825,740	3,434,631	1,151,618	29,836,226
non-coffee	118	12	1,237,775	1,075,870	3,823,052	6,470,609	1,792,636	470,018	169,207	8,472,386

Source: author's calculations based on raw data from FAST

4.3 Additional considerations and remarks related to the empirical analysis

4.3.1 Observations about POs with the smallest average member size.

There are 6 POs in the Hungarian population where the average member size is below 1 hectares.[17] They have all successfully scaled in terms of membership size with memberships ranging between 304 and 2900. The average land size cultivated by farmers ranges between 0.17 and 0.94 hectares. The total number of participants in these six POs represents over 50% of all farmers who participate in the 43 qualifying Hungarian POs while only 6.7% of the land area cultivated by POs. Five of the six POs have GVC access even though only 3 exports directly. The number of services offered ranges between 3 and 7 with both average of 4.5, compared to the average of 3.3 for the pool of 42 POs.

The size of this group is too small to study statistically in order to try to gather some insight into the factors that might be associated with their success

[17] One additional PO satisfies the criteria on the governmental list which was excluded from the empirical analysis because it is under liquidation. Further investigation revealed that the PO ran into problems very similar to that of Morakert: it was unable to satisfy its contracts with retailers and therefore had to rely on imports from Ukraine which in turn also made the news and may have contributed to the ultimate downfall of the PO.

despite the very small average size of their participating farmers. However, we can observe some interesting pattern among these POs.

Four of the six POs above carry out sustainable intensive farming at least on part of the land cultivated. Intensive farming in this context represents greenhouse, tunnels, drip irrigation and in some cases heated green houses for year-around production using geothermal energy. Interesting to note that one of these POs highlighted in the interviews that they work with smaller participants to carry out intensive production, including through the provision of inputs and know-how, and in fact all the farmers with less than 1 hectare have intensive production in that case, cultivating a vertically growing cucumber under thin foil that is very labor intensive but has high productivity rate per hectare.

Four of the six POs above also have collective identity activities (CIA) which might explain their ability to overcome the collective action problem to attract and maintain a large number of participants farmers and coordinate their production in a predictable way (i.e. mitigate or manage side selling risk) so that most of them accomplished GVC access.

Important to note that five of the six POs above are cooperatives. The sixth one is a hybrid, Del-Kertesz. This finding is a critical one for this paper:

while cooperatives on average lack behind in performance behind their IOF and hybrid counterparts, under certain conditions their performance can exceed others' on some important counts: their ability to successfully aggregate the smallest farmers, helping them achieve productivity improvement and access modern markets. The in-depth study of these six POs will be the subject of further research.

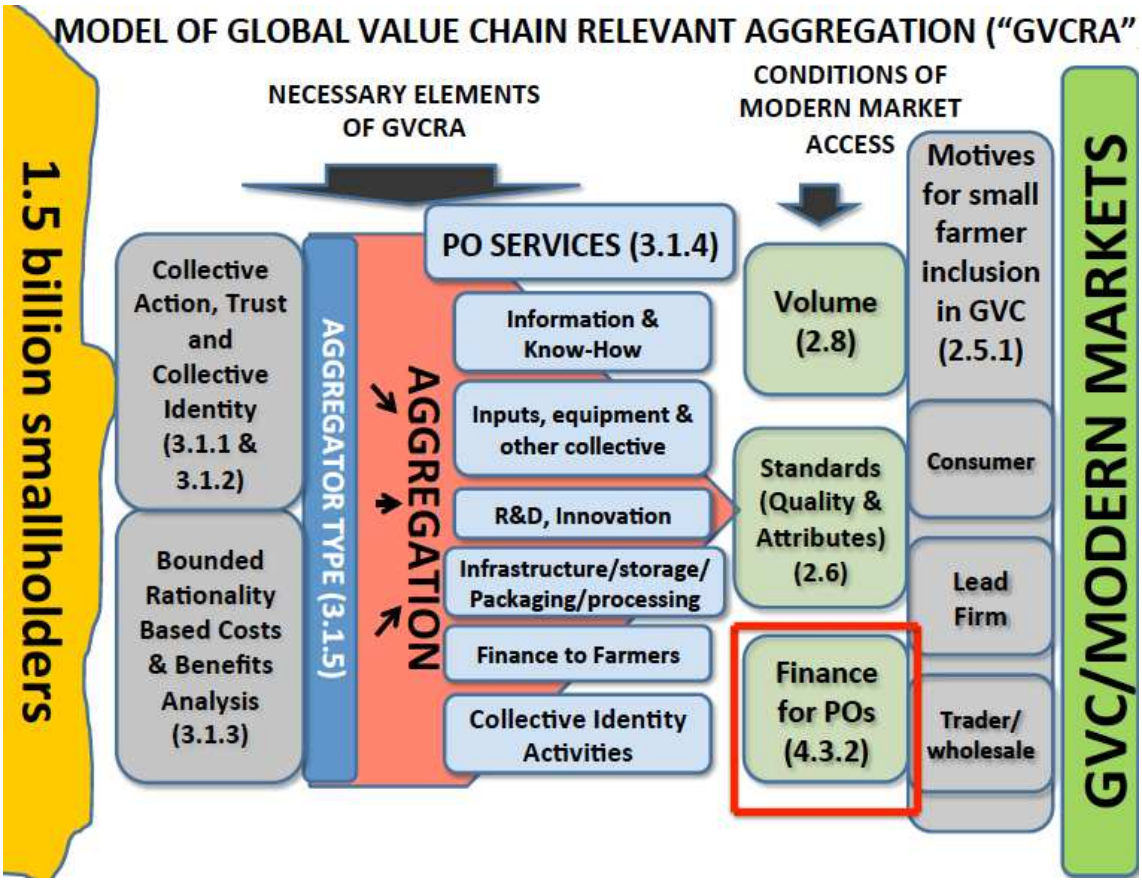
Unfortunately similar details were not available in the dataset concerning Central America and Peru to investigate whether similar patterns may also be observed there. Interview evidence suggests, however, strong collective identity effect among fair trade POs in Central America and Peru, which have been found to outperform their non fair trade counterparts based on membership size, sales and net income. Unfortunately due to the large number of missing observation on production volume, farmer size related analysis would not be reliable. Recommendation will be made to FAST to encourage their collection of relevant data in the future considering the significant implications for smallholder value chain inclusion and livelihoods.

4.3.2 Importance of Access to Finance for Competitiveness, Productivity and Global Value Chain Access

4.3.2.1 Empirical evidence

Existing academic literature dedicates considerable attention to the quantity and quality/attribute requirements of GVCs with less emphasis on the importance of financing. Several non-academic papers make reference to the importance of financing but without providing empirical evidence. As described in Section 4.2, the results of this research have empirically demonstrated that both POs' access to finance as well as POs' provision of financing to farmers are closely associated with POs' sales per hectar, and indicator of productivity and competitiveness and key to achieving the production volume required to be able to do business in the modern markets.

The importance of volume and quality/attribute requirements is widely documented in the literature. The relationship between GVC participation and access to finance is often suggested by practitioners, including those interviewed for this work, but with this study wanted to test whether I can empirically confirm the importance of access to finance as a key condition of GVC access.



Copy of the GVCRA model proposed in Section 3, with the component under discussion ("Finance for POs") highlighted.

Short-term debt ("std"), obtained from POs' balance sheets, is used as an indicator of POs' ability to access financing. Using the dummy variable GVC, reflecting whether PO participates in GVC related trade, as dependent variable, we use a logit model to analyze the relationship between financing and GVC access, by keeping constant sales of POs (capturing their quantity of production)

and certification[18] (as an indicator of compliance with quality and attribute requirements of modern value chains).

Table 16. Conditions of market access logistic regression results for Hungary

Logistic Regression		
DV: GVC	Coefficient (P>|z|)	Odds Ratio (P>|z|)
Lnsales	1.788322 (0.078)	5.979413 (0.078)
Std	0.0007071 (0.054)	1.000707 (0.054)
Certification	4.26536 (0.002)	71.19057 ((0.002)
Constant	-15.78381 (0.053)	1.40e-07 (0.053)
Log Likelihood	-11.99444	
LR Chi2 (Prob > chi2)	24.31 (0.0000)	
Pseudo R-squared	0.5034	

Access to short term financing, in addition to the size of a PO's sales and certification[19] all have positive relationship with the likelihood of GVC access and are all statistically significant at 90% confidence level. Together they explain more than 50% of the variation in POs' GVC access.

[18] In the Hungarian example the most common certifications are GlobalGAP for good agricultural practices, and HAACP for food safety, two certifications widely required by European retailers.

[19] Certification is an imperfect proxy for "quality and attributes" and includes a more narrow set of requirements than those that apply reality, introducing some bias in the model.

In the Central America/Peru data we have information about the contracts the POs have which we use as proxy for modern market access. Otherwise the same modern market access model is being applied as the one used in Hungary, consisting of sales, certification and short term debt as measures of scale, quality/attributes and access to finance, respectively. The results are summarized in the table below.

Table 17. Conditions of market access: logistic regression results for Central America and Peru

Logistic Regression					
DV: contracts	Coefficient (P>|z|)	Coefficient (P>|z|)	Coefficient (P>|z|)	Coefficient (P>|z|)	Coefficient (P>|z|)
Lnclt (short term debt)	1.015272 (0.074)			0.2192531 (0.797)	0.8135334 (0.133)
Certification		2.233592 (0.087)		5.95698 (0.153)	1.939249 (0.198)
Sales			4.38e-07 (0.433)	2.033-06 (0.402)	
Constant	0.0033103 (0.12)	1.098612 (0.178)	1.559732 (0.064)	-7.129 (0.414)	-8.993352 (0.153)
Log Likelihood	-10.1492	-8.8485339	-9.1759858	-4.5687136	-6.2971542
LR Chi2 (Prob > chi2)	5.24 (0.0221)	3.13 (0.0770)	1.75 (0.1854)	10.15 (0.0173)	6.91 (0.0316)
Pseudo R-squared	0.2686	0.1501	0.0872	0.5263	0.3543

Short-term debt and certification are statistically significant explanatory variables, just as in Hungary. But unlike in Hungary, the relationship is not

statistically significant in the case of sales. The reason is likely to be the fact that many of the POs in the sample are involved with coffee production. Many coffee POs (15 out of the 27 in the sample) are fair trade certified and sell via fair trade second and third level POs; thus production and sales volume is less critical for in those cases for modern market access due to Fair Trade's dedicated market channels that aggregate production at several levels in a federated structure. However, the weakness of the model may be the result of data limitations as the analysis finds that Fair Trade certified producers have higher sales than their non Fair Trade peers.

Despite some of the weaknesses of the Central America/Peru empirical analysis, the importance of financing for GVC and modern market access has been clearly demonstrated in both the Hungarian and Central America/Peru datasets.

4.3.2.2 Reflections Based on Qualitative Evidence

The basis of the informal financial system was familiarity with the borrower. In fact the informal lender was typically an insider in the community

and had much better information about the "bankability" of the borrower than formal financial institutions (Frederico, 2009). Financial intermediation evolved in the 19th century when landlords and merchants borrowed from FIs and on-lent to farmers. Such financial solutions had two important merits: first, they built on the landord's and merchant's insider knowledge of the farmers, and it reduced transaction cost through interlinked transactions (merchant and landlord are in contact with the farmers and carrying out transactions.) The spread charged reflected the risk premium and information cost.

Such linkages are especially important when considering the problem of collateral in agriculture. Land valuation is challenging and land is often illiquid, not to mention problem with land titles in many countries. Movable assets like machinery or equipment tend to be very unreliable collateral. Thus conventional types of formal financing are seldom applicable to farmers, creating considerable discomfort for most financial intermediaries when it comes to engaging in PO or farmer finance.

Regarding the core forms of farmer finance (KIT/IIRR, 2010), this study found the following:

1. Chain liquidity: Chain liquidity provided by buyers or input suppliers is scarce not only in Hungary but in general internationally, and is only provided by buyers and input suppliers if they have strong business incentive to do so and if there is stable and ongoing relationship with the farmers. In addition, even when chain liquidity is offered, it usually comes at high cost and the finance costs are not transparent as they are packaged into the pricing of the bought/sold product. This may be in part because due to increased concentration, TNC input providers and buyers, unlike their predecessors, do not have insider knowledge of farmers and their communities. Most interviews carried out as part of this work emphasized both the scarcity and high cost of chain liquidity financing. The exception was one interview with a capacity building provider to coffee farmers in Central America, who felt that some coffee traders who value long terms relationships with suppliers develop familiarity with the farmers, offer financing at reasonable cost and in return earn farmer loyalty which helps

mitigate the side-selling risk which has both quality and quantity implications as discussed earlier in this paper ("double side selling").

2. Agriculture finance: Most financial institutions shy away from financing agriculture in general given the risks of the sector, lack of collateral and high transaction cost. Agriculture finance relies heavily on hard collateral and therefore it is rarely an option for smallholders. The exception is microfinance, where the group lending structure provides collateral.[20]

However microfinance institutions ("MFIs") tend to avoid both less densely populated areas and long term or seasonal financing and therefore for the most part have played limited role in smallholder finance. In particular rural areas that are not densely populated or dependent on a few principal crop or lifestock activity (as opposed to a local economy with more diversified sources of income) tend to be avoided by MFIs due to higher transaction cost and risk (including seasonality and collateral constraints)[21]. In addition, driven again by low transaction size and high transaction cost, MFIs lend at

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[20] In other words if borrower is unable to repay the loans, others in the group are also liable.

[21] Most MFIs focus on short-term loans with frequent and regular repayments, a business model that does not fit well with the needs of seasonal crop or livestock producers. (World Bank MFI website)

considerably higher rates than other financial intermediaries (See Annex F for comparison in Peru where MFI rates for farmers can be as high as 75%[22]). Therefore microfinance in its current form is unlikely to offer a systemic solution to farmers' finance need. Some interviewees offered optimism that mobile phone based lending or microfinance, considerably reducing the transaction cost of rural finance, may offer a solution in the future.

3. Value chain finance. Value chain finance helps overcome some of the collateral constraints discussed earlier while also reducing transaction costs, thus using the bankability of some value chain actors for the benefit of smallholders. It involves a triangulated approach that, at minimum, involves a PO, the buyer and the financial intermediary. In the basic form of value chain finance, the financial intermediary lends to the PO, secured by a contract, whereby the buyer agrees to make the payment directly to the lender which, in turn, will deduct the amount needed to service the debt and make the remainder available to the borrower. Contract with a financially solid buyer, not to mention a TNC, is a strong collateral for the loan and helps

[22] Interviews carried out for this research indicated that MFI rates were not affordable for farmers, even when they were available.

mitigate the credit risk. In addition, the buyer's engagement with suppliers may be leveraged for reducing the transaction cost of financing. Nonetheless, agriculture remains a sector that most commercial banks perceive to be very risky to finance and therefore financial intermediaries are generally reluctant to engage in value chain lending. In addition agriculture, including value chain, finance does require some industry specific technical skills that most financial intermediaries lack. The Hungarian bank most active in agriculture lending has both a technical expert for evaluating potential borrowers (agronomist who himself used to head up a large PO and has strong familiarity with the sector) as well as a director in charge of agri-finance who himself has decades of experience and strong ties in the sector. The agriculture portfolio, a considerable part of which is related to value chain finance, has outperformed most other sectors in the bank's overall portfolio both in terms of repayment rates and profitability.

Given the reluctance of most commercial banks when it comes to lending to POs, over the last decade several international social enterprise financial intermediaries (SEFIs) have emerged trying to serve this market segment for the

benefit of smallholders, including Root Capital, Oikocredit, Triodos and ResponsAbility, to mention some of the more significant ones. These SEFIs, some of them operating as nonprofit organizations, mostly provide value chain finance, sometimes in combination with technical assistance.

While value chain finance is still in its early stages, SEFIs have proven the triangulated structure to be a viable way of financing smallholders in the era of GVCs despite the lack of hard collateral and thanks to the structure's ability to help reduce transaction costs. As illustrated in figure 8, the vast majority of value chain finance for smallholders is financing coffee and mostly in Latin-America, which is where farmers are reasonably well organized into POs, partly due to the influence of Fair Trade on coffee cooperative formation.

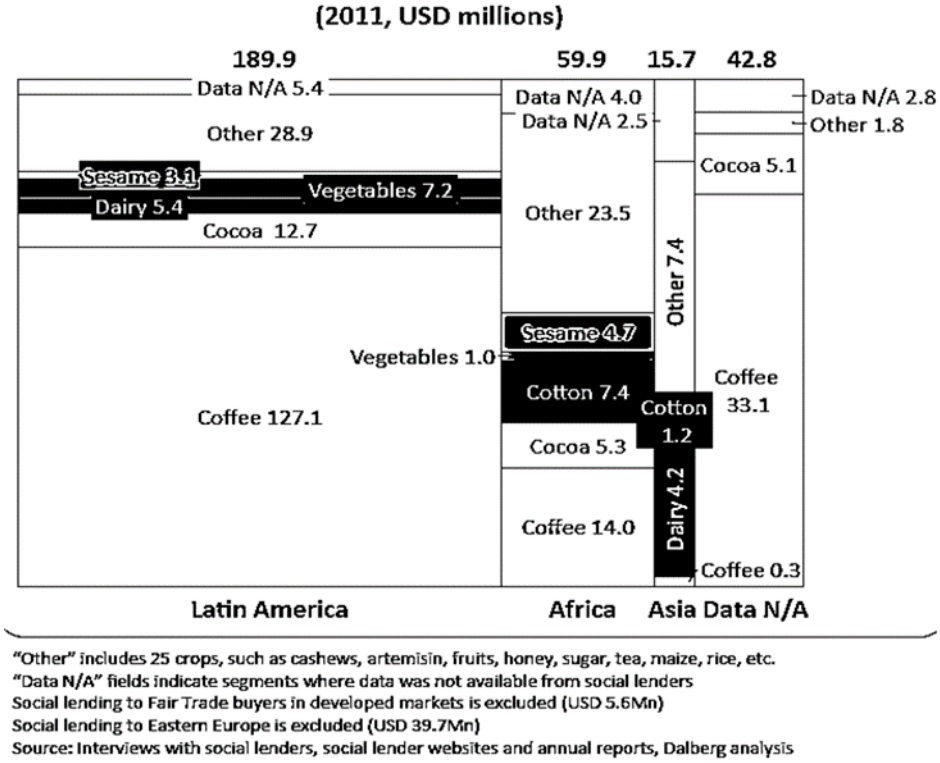

Figure 8. Structure of global value chain lending to POs

Source: Dalberg 2012

In the ideal situation GVC lead firms take an active role in value chain finance which can help both mitigate risks and reduce transaction costs, not unlike in the historical examples of village merchants and traders. Lead firms increasingly keep computerized information about their suppliers, which can become valuable data for a financier's risk assessment.

While value chain finance offers a promising solution for the short term financing of POs that participate in modern markets, smallholder agriculture also requires capital to finance household expenditures, investments in land and machinery and production related expenditures (such as inputs) at the farm level. POs may on-lend the proceeds of value chain finance to farmers to help address those needs, an important service that POs may provide but also one that requires prudent systems and careful procedures. [23]

As Oxfam points out (2009), many of the promising efforts that target aggregator and farmer finance involve a combination of actors, each contributing in their areas of strengths, with the goal of improving the balance between risk,

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[23] There are also some rare examples of value chain financing that benefit farmers directly (as opposed to their POs). One example is Starbucks which provided $70 million of financing over 40 years to coffee farmers to promote sustainable practices, mainly through social lenders. Another example is related to Pepsico's effort to address its growing need for high oleic sunflower oil, whereby PepsiCo partnered with a local financial intermediary to make available $40.4 million for microloans for Mexican sunflower farmers. Pepsico committed to purchase 100 percent of the crop, for an estimated $52 million over seven years. Additionally, PepsiCo is investing $2.6 million to support management of the Mexican sunflower crop and will provide technical training to the small farmers. While these efforts are admirable, they are rare, due to the transaction cost involved in financing farmers directly. Therefore even in the case of Starbucks and Pepsico, the farmers involved in these financing schemes represent a tiny fraction of these firms' suppliers. Technology based innovations may one day help address the transaction cost problem related to value chain finance that directly benefit farmers. Opportunity International, in partnership with the Gates Foundation and MasterCard Foundation are experimenting with mobile phone based finance for smallholders (Sinha, 2014).

cost and return. Value chain finance, leveraging farmer-buyer relationships as collateral, is offering a still nascent but promising solution.

5. Limitations of this Research

Collection of data on POs poses a challenge due to the various legal forms they can take and to the best knowledge of the author no systematic PO data is being collected by any of the international development organizations. This research involved primary data collection of original data in the case of Hungary and the use of secondary data in the case of Peru and Central America, both of these having their unique set of the limitations.

While the Hungarian data covers the entire population of accredited POs and the data collected from various sources is believed to be robust, findings drawn from the Hungarian data may have limited applicability in other countries. High level of literacy and good physical infrastructure, in particular, are characteristics that many less developed countries do not share and may affect the applicability of the results. Hungary's historical heritage, especially forced collectivization and the resulting skepticism about farmer collective action, may further limit the applicability of the findings.

In addition, as discussed in section 2.3, moderns market retail outlets have been disseminating in waves and at different speed around the world.

Smallholders in some of the third wave countries, for example India, for the most part do not yet face modern market requirement. However, even in those markets modern food retail outlets are fast increasing market share, albeit from a very small base, and the findings of this paper may be helpful to policymakers as they are preparing for the possible consequences of those changes.

As a result of the above limitation of the Hungarian empirical work, many of the interviews carried out for this work were of global focus, to identify cross-regional issues and patters. Furthermore, the Peruvian and Central American data was sought in order to empirically test the applicability of the model and the consistency of the key findings. While some of the Hungarian findings were found to also hold in Peru and Central America, the secondary data that was available is more limited than the data collected in Hungary and there are a significant number of missing observations. This weakness in the data limits the author's ability to reach definite conclusions about the results.

However, the weaknesses of the quantitative data has at least in part been compensated for by the richness of contextual information from interviews.

6. Policy Recommendations

These policy recommendations cover all actors that may play a role in promoting development, including development organizations, NGOs and even private sector organizations, and are not limited to government policy intervention opportunities. The fast dissemination of modern food retail outlets in most of the world and the shift toward food production being organized along global value chains and production networks governed in part through the use of standards have increased the need for farmers to be organized into POs. This paper shed some light on aspects of POs that support their modern market access and therefore might deserve highlighted attention from policymakers.

1. How to target policy support. This study found that cooperatives are not the panacea for development and policymakers should also consider other forms of POs, including cooperative-hybrids, for support. In fact the current bias towards cooperatives carry the risk of creating market

distortions by giving artificial advantage to one PO form.[1] Nonetheless, under certain conditions cooperatives performed better than their non-cooperative peers. Specifically, cooperatives were found to be more likely to include farmers with less than one hectar land and achieve high productivity levels and modern market access. Considering the nuanced picture in terms of the performance of various PO types, PO type should be less of the selection criteria for policy support but rather the activities of the PO and the services it offers to smallholders. Policymakers may want to consider supporting more comprehensive POs as opposed to marketing or "income only" organizations as the former may be more likely to achieve modern market access. Policymakers should also consider linking their support to certain aggregator characteristics, in particular services. While in general this study found that POs with more than 4 services offered to their members are significantly more likely to scale, some services had stronger relationships than others with POs'

[1] The United Nation's High Commissioner for Refugees has been one of the organizations to support cooperatives as a preferred aggregator type. However, they have experienced very high failure rates among the cooperatives supported. (Source: Oxford University Humanitarian Innovation Conference lecture, August 2014.)

ability to scale and achieve modern market access. Therefore different service criteria is likely to be justified when supporting the scaling of aggregators as opposed to their formation. Most PO services frequently supported by policy were not found to have significant role in enabling modern market access. The services that were found to have played a role across various models were finance and innovation. Differentiated support and/or capacity building for the provision of access to finance and for the promotion of innovation may be justified. Finally, the collection of data about aggregators around the world would be critical to facilitate analysis that can further inform the design of the policy intervention.

2. Access to finance. Finance plays the most important role among the PO services not only when it comes to achieving scale and modern market access but also smallholder productivity. Furthermore, it is primarily PO financing available to the farmers, as opposed to financing available to the PO, is what makes a difference for scale, market access and productivity. However, the limited financing available to POs is mostly short term in nature backed by contracts to provide liquidity to POs while awaiting payment from buyers so that they can pay the producers. While such

value chain trade financing is essential, it should be a policy priority to support PO access to finance that can be on-lent to farmers, especially since direct financing to farmers have traditionally been challenging due to transaction cost and risk perception concerns. In addition, while value chain finance has been used successfully in multiple countries for nonperishable cash crops, its application to perishable and non-cash crops have been very limited. Therefore the scaling and dissemination of tested value chain finance business models needs policy support, especially for perishable goods. A global risk mitigation mechanism that combines a large number of relatively small exposures with geographic diversification can be a promising intervention and one that has not been tried. Therefore enabling policies need to address those concerns via risk mitigation (risk sharing or guarantees, insurance, etc.) and facilitation to help reduce transaction cost. Policymakers need to be aware of three sets of constraints in this regard. First, many POs have limited credit track record and financial intermediaries are reluctant to lend to them or do so pricing in the great deal of uncertainty regarding the probability of default. Therefore policy intervention is desirable to help create such

track record via risk mitigation tools for financial intermediaries, so that their risk becomes more predictable when lending to POs. Second, when a PO on-lends the proceeds of a loan to member farmers, in effect it becomes the financial intermediary. The PO therefore becomes the lender to its members and will need to manage those member loans carefully in order to fulfill its own obligations to its lenders. Most POs do not have the capacity to fulfill that role and manage the related risks and thus considerable policy attention is needed to support the development of related PO capacity. PO financing to farmers is likely to also contribute to increased member loyalty and help mitigate the risk of side selling. Third, many financial intermediaries lack the expertise needed to understand and assess POs' operations and its risks. Policymakers can have a strong role to play in relevant capacity building and in the central provision of relevant information and expertise. Finally, PO provision of financing to its members alone is not likely to address the market failure of rural finance. Therefore policy support is also essential for innovations in the area of rural access to finance that help address the issues of high

perceived risk and the high transaction cost, such as mobile banking and other technology based solutions.

3. Inclusion of small producers. In general this study found that there can be a trade-off between sustainability and inclusion. Buyers and therefore POs tend to prefer fewer and larger producers in order to achieve the desired production volume, putting small farmers at a disadvantage. However several exceptions became apparent. This study found that smaller producers and POs can be considerably more productive (in terms of sales per hectare) than their larger counterparts. Beyond the classic family labor productivity dynamics, important drivers of this productivity differential in the Hungarian empirical analysis are related to intensive agricultural methods involving green houses/tunnels, irrigation, renewable energy based heating of greenhouses, etc. These techniques do not only help ensure year around production but also help manage agricultural production related risks and improve the predictability of production. In other words several POs of very small farmers, in many cases cultivating on considerably smaller total land area than their counterparts, achieved and maintained EU recognition. Those farmers

and POs had significantly higher productivity than their larger counterparts which, in most cases, was achieved via sustainable intensification. However, sustainable intensification solutions require considerable investment that most small farmers cannot afford and have challenges accessing the necessary long term financing for. Long term financing to small farmers is nearly nonexistent and is likely to once again require considerable policy innovation that involves various actors along the value chain and leveraging the public sector's ability to overcome transaction cost concerns by organizing the market and generating a large pool of diversified smallholder loans that becomes more attractive for private financial intermediaries.

The collective action problem faced by small farmers is not limited to agriculture. Other sectors with great importance for the global poor, for examples the handicraft sector and artisanal fisheries[2], face very similar situations in terms of small scale, highly dispersed and often remote production,

[2] Artisanal fisheries employ, directly and indirectly, nearly 150 million people globally. FAO actively promotes the formation of cooperatives in the sector.

facing a market dominated by global value chains and having to meet their standards and other requirements. Aggregation best practices in the agrifood sector may be replicable in those other sectors.

7. Conclusions

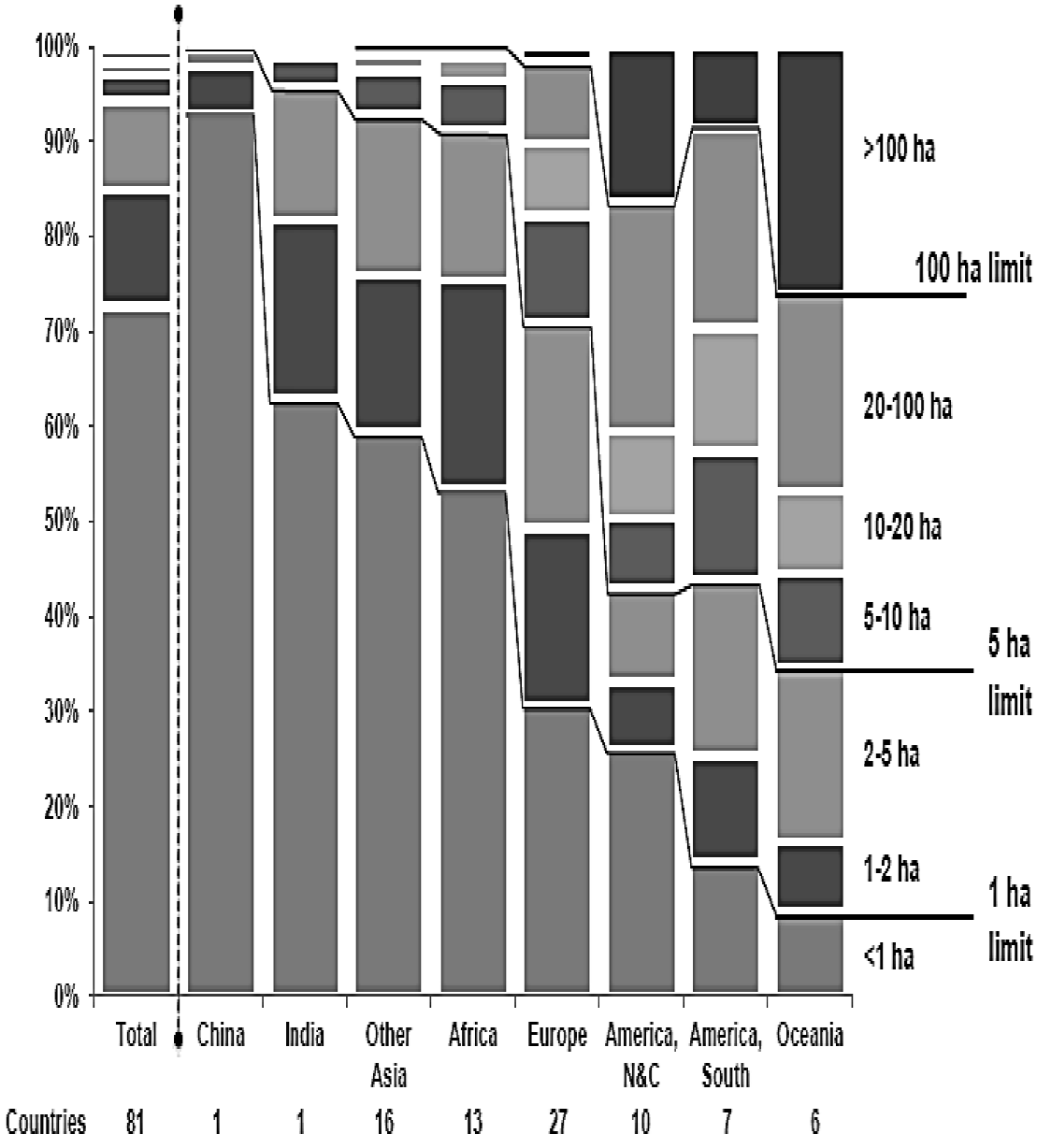
Smallholders do not only play a central role when it comes to poverty alleviation efforts but are also key to production expansion. Improved production methods and productivity improvements by smallholders can become an important source of food production while also benefitting poverty alleviation, climate change adaptation and biodiversity conservation efforts. The shift towards food production being organized based on global value chains and production networks and the fast dissemination of supermarkets and other modern food retail outlets around the world increased the need for smallholders to partake in some form of aggregation mechanism in order to become contributors to the global food system.

This research attempted to shed some light to the paradox of aggregation: few smallholders participating in seemingly beneficial collective efforts with the potential to connect smallholders to modern markets. We proposed a theory of GVC relevant aggregation that was empirically tested to identify the key elements that may help ensure POs' modern market access. It was found that cooperatives, traditionally supported by policymakers, may be at a disadvantage when it comes to modern market access. Nonetheless, under certain conditions

some of them performed better than their non-cooperative peers. Specifically, cooperatives were found to be more likely to include farmers with less than one hectar land and achieve high productivity levels. It was found that some PO services play more important role than others for modern market access in the case of already established POs. Access to finance and innovation has been found to be of great importance as well as innovation. Collective identity activities also appear to be associated with the more successful POs. These findings have important policy implications for the development field.

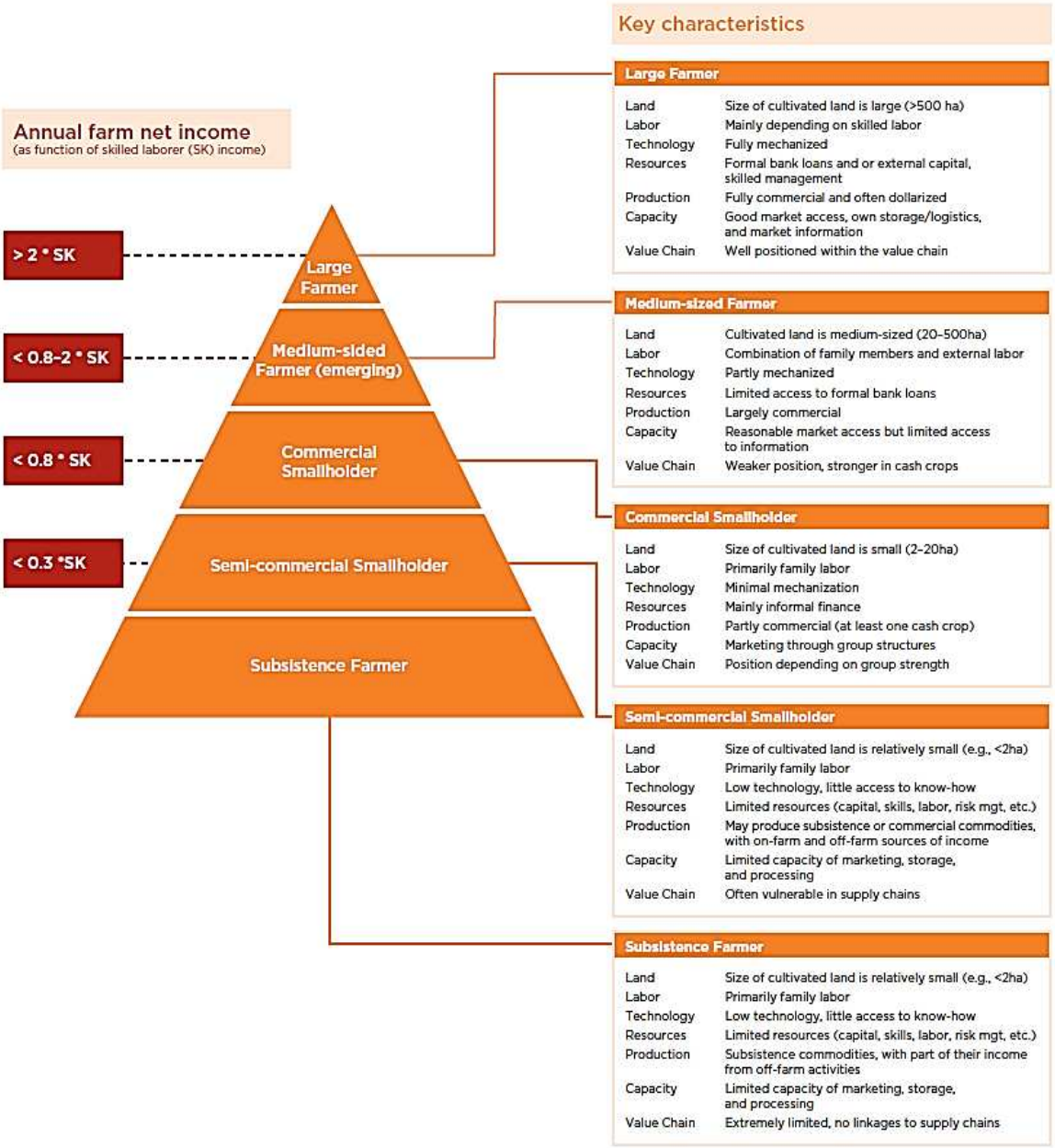
Appendix A: Regional Distribution of Farm Size

(Source: FAO's Investing in Smallholder Agriculture)



Appendix B: Farmer Characteristics According to Size

Source: IFC: Innovative Agricultural SME Finance Models (2012)



Appendix C: Rural Poverty Trends

(Source: IFAD 2011 Rural Poverty Report 2011

Annex 1 Rural poverty trends by region, 1988-2008

Date	Asia and the Pacific[a]	*East Asia*	*South Asia*	*South East Asia*	Sub-Saharan Africa	Latin America and the Caribbean	Middle East and North Africa	Developing world[b]
Total population (millions)								
Closest 1988	2 673	*1 121*	*1 128*	*419*	458	421	238	**3 791**
Closest 1998	3 143	*1 264*	*1 374*	*498*	603	499	299	**4 544**
Closest 2008	3 543	*1 349*	*1 616*	*569*	777	567	361	**5 247**
Rural population (millions)								
Closest 1988	1 962	*827*	*837*	*293*	333	129	124	**2 548**
Closest 1998	2 129	*828*	*984*	*311*	412	128	143	**2 812**
Closest 2008	2 188	*763*	*1 112*	*307*	497	122	161	**2 968**
Incidence of poverty (percentage of people living on <US$2/day)								
Closest 1988	80.1	*83.6*	*80.3*	*66.6*	74.8	23.1	16.1	**69.1**
Closest 1998	67.9	*61.4*	*76.2*	*60.7*	77.2	21.3	25.3	**61.2**
Closest 2008	55.0	*36.3*	*71.1*	*53.5*	75.6	14.3	17.2	**51.2**
Incidence of extreme poverty (percentage of people living on <US$1.25/day)								
Closest 1988	52.5	*54.0*	*52.2*	*47.8*	52.3	13.6	4.6	**45.1**
Closest 1998	39.0	*34.4*	*44.6*	*35.0*	57.9	10.8	5.2	**36.1**
Closest 2008	26.8	*15.9*	*38.5*	*18.5*	52.5	7.2	4.0	**27.0**
Incidence of rural poverty (percentage of rural people living on <US$2/day)								
Closest 1988	90.5	*98.4*	*85.2*	*76.5*	75.2	42.4	32.7	**83.2**
Closest 1998	82.4	*76.1*	*86.8*	*87.7*	86.7	44.3	30.7	**78.6**
Closest 2008	60.5	*34.8*	*80.4*	*62.0*	87.2	19.9	11.7	**60.9**
Incidence of extreme rural poverty (percentage of rural people living on <US$1.25/day)								
Closest 1988	59.1	*63.6*	*55.9*	*52.2*	51.7	25.7	9.5	**54.0**
Closest 1998	49.7	*44.1*	*53.8*	*52.7*	64.9	21.8	6.6	**48.4**
Closest 2008	31.4	*15.3*	*45.2*	*25.6*	61.6	8.8	3.6	**34.2**
Number of rural people in poverty (<US$2/day, in millions)								
Closest 1988	1 775	*814*	*713*	*225*	251	55	41	**2 121**
Closest 1998	1 754	*630*	*854*	*273*	357	57	44	**2 212**
Closest 2008	1 325	*266*	*894*	*190*	433	24	19	**1 801**
Numbers of rural people in extreme poverty (<US$1.25/day, in millions)								
Closest 1988	1 160	*526*	*468*	*153*	172	33	12	**1 377**
Closest 1998	1 057	*365*	*530*	*164*	268	28	10	**1 362**
Closest 2008	687	*117*	*503*	*78*	306	11	6	**1 010**
Rural people as percentage of those living in extreme poverty (<US$1.25/day)								
Closest 1988	82.6	*86.8*	*79.4*	*76.6*	71.8	57.6	99.0	**80.5**
Closest 1998	86.4	*84.0*	*86.5*	*94.2*	76.6	51.9	61.3	**82.9**
Closest 2008	72.5	*54.3*	*80.7*	*74.5*	75.0	26.5	40.1	**71.6**

[a] Comprises figures for East Asia, South Asia and South East Asia, and also the Pacific for which there is no breakdown in the table

[b] Any discrepancy in totals is the result of rounding

Appendix D: Inequality Indicators by Region

(Source: World Bank Monitoring inequality)

Total inequality (between+within)										
Region	1981	1984	1987	1990	1993	1996	1999	2002	2005	2008
East Asia and Pacific	0.283	0.234	0.229	0.272	0.313	0.296	0.322	0.349	0.328	0.366
Eastern Europe and Central Asia	0.283	0.274	0.283	0.409	0.340	0.358	0.305	0.281	0.279	0.291
Latin America and the Caribbean	0.636	0.652	0.655	0.657	0.695	0.715	0.713	0.725	0.648	0.609
Middle East and North Africa	0.358	0.379	0.311	0.290	0.292	0.298	0.311	0.333	0.261	0.266
South Asia	0.164	0.173	0.175	0.165	0.166	0.186	0.194	0.191	0.193	0.195
Sub-Saharan Africa	0.503	0.533	0.552	0.552	0.521	0.471	0.475	0.509	0.502	0.531
Total	0.651	0.591	0.569	0.576	0.585	0.540	0.518	0.528	0.520	0.567
Between-country inequality										
East Asia and Pacific	0.158	0.100	0.079	0.093	0.113	0.092	0.104	0.108	0.089	0.110
Eastern Europe and Central Asia	0.155	0.144	0.152	0.151	0.067	0.095	0.089	0.077	0.062	0.066
Latin America and the Caribbean	0.096	0.101	0.090	0.058	0.037	0.051	0.043	0.042	0.045	0.048
Middle East and North Africa	0.101	0.122	0.063	0.054	0.060	0.071	0.081	0.104	0.042	0.052
South Asia	0.008	0.008	0.007	0.010	0.009	0.008	0.012	0.009	0.011	0.014
Sub-Saharan Africa	0.165	0.186	0.176	0.177	0.166	0.140	0.149	0.164	0.141	0.184
Total	0.446	0.378	0.344	0.329	0.325	0.276	0.252	0.250	0.249	0.296
Within-country inequality										
East Asia and Pacific	0.125	0.133	0.150	0.179	0.201	0.204	0.218	0.241	0.238	0.256
China	0.093	0.104	0.127	0.147	0.173	0.171	0.193	0.222	0.212	0.237
Eastern Europe and Central Asia	0.128	0.130	0.131	0.258	0.272	0.263	0.216	0.204	0.217	0.225
Latin America and the Caribbean	0.541	0.551	0.565	0.600	0.658	0.664	0.670	0.683	0.603	0.561
Middle East and North Africa	0.256	0.257	0.249	0.236	0.232	0.227	0.229	0.230	0.219	0.215
South Asia	0.156	0.165	0.168	0.155	0.157	0.178	0.182	0.182	0.182	0.181
Sub-Saharan Africa	0.338	0.347	0.376	0.375	0.355	0.331	0.326	0.345	0.361	0.347
Total	0.205	0.213	0.226	0.247	0.260	0.264	0.266	0.277	0.271	0.271
Total excluding China	0.249	0.256	0.263	0.285	0.292	0.297	0.292	0.296	0.291	0.282

Appendix E: Oxfam's Rating of Top Brands

Company	Overall Score		LAND		WOMEN		FARMERS		WORKERS		CLIMATE		TRANSPARENCY		WATER	
	original*	1/14**	original*	1/14**	original*	1/14**	original*	1/14**	original*	1/14**	original*	1/14**	original*	1/14**	original*	1/14**
NESTLE	54%	61%	3	5	4	5	5	5	6	7	6	7	7	7	7	7
UNILEVER	49%	56%	3	3	2	4	7	7	6	7	5	6	5	6	6	6
COCA COLA	41%	51%	1	6	5	5	3	3	6	6	5	6	5	5	4	5
PEPSICO	31%	36%	2	2	2	2	3	3	3	4	3	4	4	5	5	5
MARS	30%	31%	1	1	1	2	5	5	4	4	3	3	5	5	2	2
DANONE	29%	33%	1	1	1	1	1	2	3	3	3	4	6	6	5	6
MONDELEZ	29%	30%	1	1	2	3	4	4	4	4	3	3	4	4	2	2
GENERAL MILLS	23%	24%	1	1	2	2	1	2	3	3	2	2	2	2	5	5
KELLOGG'S	23%	23%	1	1	2	2	1	1	2	2	2	2	4	4	4	4
ASSOCIATED BRITISH FOODS	19%	19%	1	1	1	1	2	2	1	3	1	1	3	3	2	2
Note: rating is on a scale of 1-10, 0-1=very poor, 2-3=poor, 4-5=some progress, 6-7=fair, 8-10=good																
* First ratings assigned, as published in February 2013 report																
** Most recent rating available per Oxfam behindthebrands.org website																

Source: Author prepared based on Oxfam 2013 report and Oxfam's behindthebrands.org website.

Appendix F: History of Cooperatives and Distinct Regional Characteristics

United Kingdom. The history of organized cooperatives dates back to the agricultural and industrial revolutions of the 18th and 19th century in England. Established in 1844, the Rochdale Society of Equitable Pioneers is widely considered to be the first successful cooperative and a model for modern cooperatives. The Rochdale Society of Equitable Pioneers was a group of 28 weavers and other artisans in Rochdale, England. As the mechanization of the industrial revolution was forcing more and more skilled workers into poverty, these tradesmen decided to band together to open their own store selling food items they could not otherwise afford. With lessons from prior failed attempts at co-operation in mind, they designed the Rochdale Principles which served as guidelines for modern cooperatives. Cooperatives have played an important role in the UK economy since then and retain a significant market share in a number of industries. Late 19th and early 20th century farmers' movements created organizations (such as National Farmers' Union) which became incorporated into the policy process and got considerably de-radicalized (Woods, 2008). Co-operatives formed the

Co-operative Party in the early 20th century to represent members of cooperatives in Parliament. The Co-operative Party now has a permanent electoral pact with the Labour Party, and some Labour MPs are Co-operative Party members. (wikipedia.org)

Continental Europe. The Continental European roots of agricultural cooperatives also go back to the 19th century. Unlike in the UK, the cooperative movement in Continental Europe initially centered on cooperative finance, in particular for agriculture.[1] Subsequently, decline in wheat prices driven by less expensive North American wheat led farmers to forming agricultural cooperatives in order to increase scale and efficiency and thus reduce cost.[2] Denmark is one of the most successful cases of adaptation to the new circumstances, where many farmers, aided by their cooperatives, switched to animals husbandry during this period, where the threat of North

---

[1] Cooperative finance was started by the German F.W. Raiffeisen. Cooperative finance was much less expensive than conventional financing but the latter was usually not available at all. Part of the net income at the end of the year was allocated for the social needs of the community: to help orphans, to create employment for the previously incarcerated and to promote cultural preservation, just to mention a few. (Hunyadi based on Raiffeisen F.W: Cooperative Credit as a Tool for Addressing the Ailments of the Rural Population (1885))

[2] Interesting to note that North American wheat was considerable less expensive partly because of the organization of North American farmers into cooperatives.

American competition was less severe. This transformation from grains to animal husbandry and the development of the related food industry (in particular dairy) could not have happened without cooperative organizations given that the small farmers involved did have neither the know-how nor the resources to manage this transition.[3] As a result, Denmark alone had over 1,500 animal husbandry related cooperatives in 1900.

In the post WWII period cooperatives played an important role in rebuilding. The Marshall plan limited assistance and required cooperation and sharing of productive equipment in particular among farmers and producers. Regulations favorable for cooperatives were adopted and in many cases cooperatives were eligible for considerable public co-financing. Simultaneously, the cooperative sector gained considerable policy influence through institutional arrangements such as the General Committee for Agricultural Cooperation (established in 1957), which was soon followed by eight other umbrella institutions representing different cooperative branches.

[3] An important part of the Danish transformation was the provision of education, mostly technical but to some extent also cultural, especially to the rural population.

In addition, the Coordinating Committee of EEC Co-operative Associations was formed to, as its name suggests, coordinate among the nine umbrella organizations and liaise with the European Commission and the European Parliament. (Hunyadi).

United States. The lifestyle of the settlers required a great deal of cooperation and collective effort. The first farmer cooperative-like organization was formed in 1810 but it was not until 1875 that different farmer organizations started adopting the Rochdale system in carrying out collective activities. By 1900, the United States government began to pass laws that provided a favorable environment for cooperative development. According to the United States Department of Agriculture (USDA), the largest number of agricultural cooperatives existed in 1929-30, about 12,000. The number of agricultural cooperatives has been decreasing since then, they were estimated around 3,000 in 2005, reflecting consolidation, often accompanied by corporatization.

China, Cuba, Vietnam, former Soviet Block countries. After some initial influence from the early European cooperative movement, most cooperatives were turned into agricultural collectives and became heavily state controlled in these countries during their communist/socialist rule. Nonetheless, incorrectly, they continued to be called "cooperatives". To the best knowledge of the author of this paper, Cuba remains the only one of these countries which maintains collectivist farming practices. The other countries have re-distributed land and have tried to reinstitute cooperatives. However, "cooperatives" have lost credibility and often continue to be associated with the old regimes (Valdez 2005, Gorlach, Lotak, Mooney 2007). As a result, with the exception of Poland, there are few cooperatives operating and they are poorly organized, though there are ongoing efforts to strengthen the sector (Szabo 2008).

Former colonies in Asia and Africa. The extensive literature covering India in particular but also other former British colonies show that the Brits introduced cooperatives on their colonies early on. Many African countries have a long history of collective activities and the newfound political

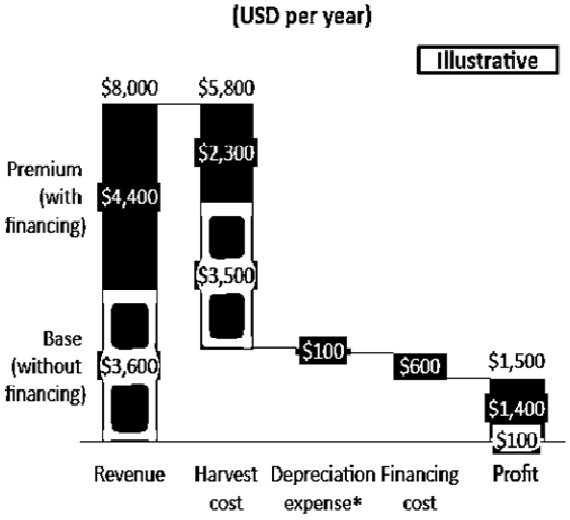
assertiveness of farmers was associated with the formation of cooperatives in Ghana and Uganda (Young, Sherman, Rose 1981). Cooperatives had heavy government involvement during colonial times and active government participation in the cooperative sector continues to this day.

Latin America. Mc Clintock (1981) shows that in Latin America the abolishment of the haciendas and thus the traditional patron/client system gave rise to cooperatives and often evolved as the organizations to deal with broader concerns of the farmers and several successful examples of social movements and protests have been directly linked to cooperatives in Latin America (Mc Clintock 1981). It is important to highlight that in contrast with the Asian and African colonies, Latin American cooperatives evolved from bottom-up, rather than introduced from top-down. This process facilitated by the emerging cooperatives created new political capacity which now suddenly represented a threat to the state and led to differing degrees of government involvement in the sector. However the peasantry's new political assertiveness was often accompanied by weak regimes which did not

impose such heavy handed involvement in the cooperative sector as did the Chinese, Tanzanian and Cuban regimes.

Appendix G: Hypothetical Case of Peruvian Coffee Farmer Profit and Loss Statement with and without Financing

(source: Dalberg 2012)



With the financing and technical assistance that they can access by belonging to a cooperative, farmers can pursue certifications, increase yield, and improve product quality, allowing them to command higher prices

Key Assumptions

- Farm of 2 ha, with a yield of 552 kg/ha, production cost of 3.2 US$/kg and price of 3.3 US$/kg
- By being a member of a cooperative (in a cooperative that receives financing) the farmer benefits from:
  - Getting paid at the moment of crop sale (when the cooperative has trade finance)
  - Receiving a higher price for certified coffee
  - Receiving pre-harvest loans from the cooperative and rehabilitation loans from the Ministry of Agriculture under the new government rehabilitation fund
- Financing and technical assistance allows farmers to increase yield by ~67% (920 Kg/ha) and price by ~33% (4.3 US$/kg)
- Coffee trees are depreciated over 20 years; rehabilitation allows for higher productivity
- Cost of finance is ~18% on a loan of $2000 used for working capital and 10% on a loan of $2200 used for rehabilitation

* Depreciation expense relates to the rehabilitation cost for coffee trees
Source: Interviews with technical assistance providers, social lenders and buyers; Dalberg analysis

Appendix H: Agromantaro

Agromantaro, a mid-size Peruvian company that sources artichokes and jalapenos from Peruvian smallholders and processes and packages them for European and the US markets, one of them being General Mills. Agromantaro, General Mills and CARE partnered to provide small farmers with training on crop management and post-harvest practices, microloans to purchase artichoke shoots and seeds for farmers who lack collateral or a verifiable credit history, training on how to form farmer cooperatives and financial planning education and related information. Agromantaro needs to secure a growing supply of artichokes and jalapenos that meets the standards and requirements imposed by General Mills[4], creating strong incentive to facilitate aggregation and capacity building and to develop long term relationship with producers. General Mills is similarly interested in securing a stable dependable supply but that alone may not be a sufficient justification for engaging in Agromantaro's program with smallholders. However, as an international brand targeting socially conscious

[4] Minneapolis based General Mills is one of the world's leading food companies with annual sales of $17.8 billion in 2013, with brands including *Cheerios, Fiber One, Häagen-Dazs, Nature Valley, Yoplait, Betty Crocker, Pillsbury, Green Giant, among others, and operating in over 100 countries*.

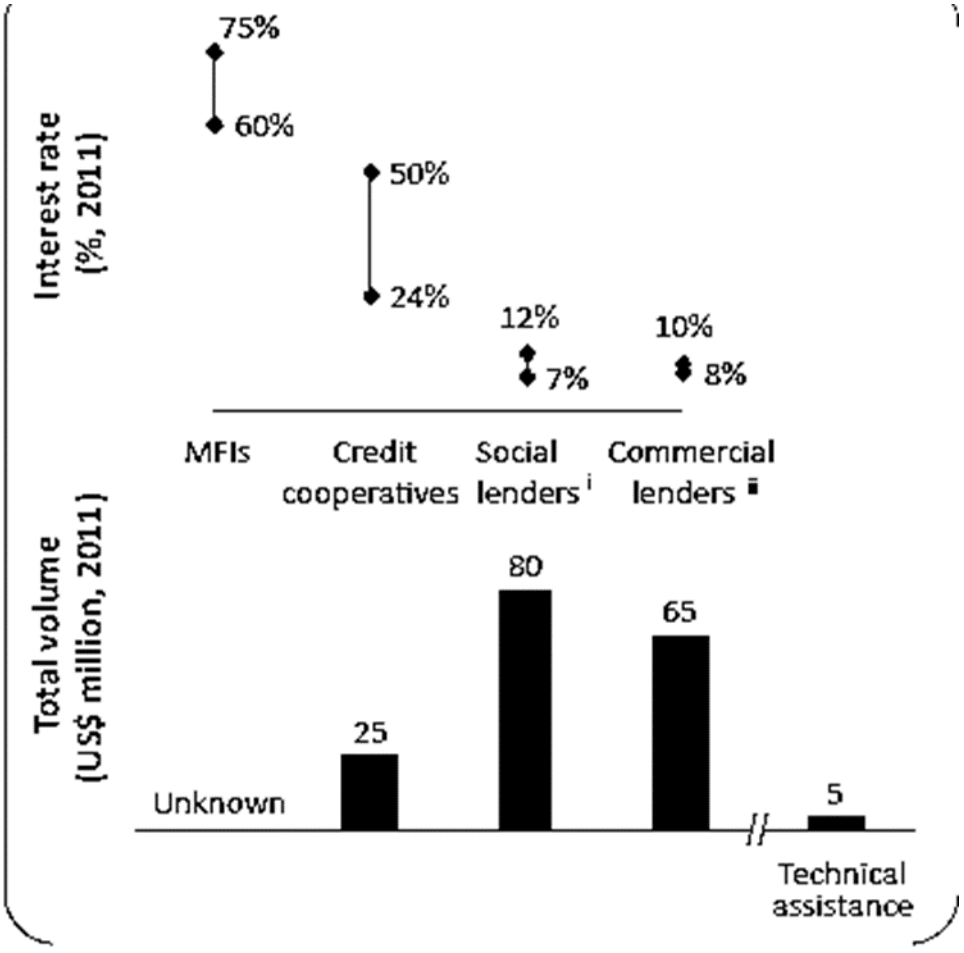
European customers (General Mills' Le Géant Vert is France's top selling brand in canned artichokes), the publicity around such smallholder programs can help enhance General Mills' brand value and can help meet sustainable sourcing commitments more generally as illustrated by the mention of the above initiative in the 2013 press release about General Mills' sustainable sourcing commitment. CARE International, an international humanitarian organization, will be providing community development and community governance related support.

(http://www.generalmills.com/ChannelG/NewsReleases/Library/2013/September/peru_sourcing.aspx,

http://www.generalmills.com/Home/ChannelG/NewsReleases/Library/2013/September/sourcing_10

Appendix I: Financing Sources for Agriculture in Peru

(Source: Dalberg 2012)



(i) Social lenders in Peru include: Root Capital, Alterfin, ResponsAbility, Rabobank, Shared Interest, Etimos, Verde Ventures and Oikocredit; (ii) Continental (BBVA) and Agrobanco are the main commercial banks that are financing cooperatives.
Source: Interviews with cooperatives, buyers and social lenders; Cámara Peruana del Café y Cacao (CPC); Dalberg analysis

Appendix J: Hungarian Producer Organization Requirements

Fruit and vegetables

Producer Organisations (POs)

POs' recognition - Requirements

Key requirements to be complied with for granting recognition are the following:

(a) The PO must be formed on the initiative of farmers, who are growers of products covered by the regime and/or of such products intended solely for processing;

(b) The PO must be able to achieve certain objectives, which contribute to the general aims of the regime, namely:

- the use of environmentally sound cultivation practices, production techniques and waste management practices, in particular to protect the quality of water, soil and landscape, and preserve or encourage biodiversity;
- and one or more of the following objectives:
  - i) ensuring that production is planned and adjusted to demand, particularly in terms of quality and quantity;
  - ii) concentration of supply and the placing on the market of the products produced by its members;
  - iii) optimising production costs and stabilising producer prices;

(c) The PO must:

- have a minimum number of members and cover a minimum volume or value of marketable production (to be laid down by Member State), and provide the relevant evidence thereof;
- provide sufficient evidence that the PO can carry out its activities properly over time and in terms of effectiveness and concentration of supply
- effectively enable its members to obtain technical assistance in using environmentally-sound cultivation practices;
- effectively provide their members, where necessary, with the technical means for collecting, storing, packaging and marketing their produce;
- ensure proper commercial and accounting management of their activities; and
- not hold a dominant position in a given market.

Moreover, the articles of association of the PO must also provide for a number of specific requirements applicable to the producer members, including the following:

- apply the rules adopted by the producer organisation relating to production reporting, production, marketing and protection of the environment;
- belong to only one producer organisation in respect of a given product covered by the regime;
- market their entire concerned production through the producer organisation;
- provide the information requested by the PO for statistical purposes, in particular on growing areas, quantities cropped, yields and direct sales;
- pay the financial contributions provided for in its articles of association for the establishment and replenishment of the operational fund.

Appendix K: Map of Hungary

Appendix L. Hungary Vegetable Statistics

Statistics on the most important vegetables in Hungarian agriculture

	TOTAL VEGETABLES			ONIONS			GARLIC			CARROTS			PARSLEY ROOT			TOMATOES		
	2010	**2011**	**2012**	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
Land Area (hectars)	**67,835**	**75,534**	**76,802**	1,695	2,318	2,076	602	1,048	1,055	1,693	1,885	1,963	2,023	2,031	1,896	1,874	1,975	1,280
Total production (tons)	**1,144,363**	**1,475,291**	**1,363,075**	40,895	57,592	57,183	4,171	6,466	6,392	58,532	65,149	74,721	27,641	32,256	32,151	134,274	163,349	108,799
Sold to																		
trader or processor	**397,072**	**586,323**	**587,012**	6,867	9,079	8,664	1,067	1,261	1,903	9,925	13,458	18,697	5,065	7,658	3,851	39,732	59,277	27,280
traditional market	**136,511**	**174,002**	**144,615**	4,314	6,946	7,529	829	2,029	1,843	11,353	12,506	11,821	6,693	7,351	8,201	10,243	25,218	21,531
direct export	**12,131**	**11,882**	**9,318**	0	0	0	300	0	0	0	0	0	0	0	0	518	1,333	836
processed or used by producer	**20,857**	**29,048**	**35,283**	5,952	6,493	5,766	16	89	138	1,851	1,914	2,921	68	95	72	1,821	1,916	1,990
own consumption	**95,378**	**95,254**	**87,146**	6,885	6,947	7,121	1,259	1,194	1,053	14,354	13,757	13,075	6,209	5,938	5,427	11,761	11,622	8,860
wastage	**5,887**	**8,621**	**12,568**	650	997	1,589	69	40	149	677	1,099	1,685	366	464	429	138	352	328
change in inventory	**7,350**	**27,449**	**19,665**	-685	2,132	2,677	71	113	260	761	2,217	1,985	1,313	1,365	2,257	6	0	-14
TOTAL	**1,147,349**	**1,480,245**	**1,371,963**	**41,842**	**58,468**	**59,118**	**4,171**	**6,471**	**6,527**	**58,725**	**65,308**	**74,912**	**27,642**	**32,297**	**32,151**	**134,288**	**163,399**	**108,826**
Imports																		
tons	**x**	**x**	**x**	14,125	12,447	9,230	1,026	997	1,485	12,453	11,569	7,787	..	..	..	18,996	14,921	9,853
million Ft	**21,924**	**20,476**	**16,811**	1,312	1,053	604	637	569	421	1,140	1,078	828	..	..	..	6,088	4,555	3,424
Exports																		
tons	**x**	**x**	**x**	1,733	2,189	2,511	417	437	256	1,518	2,398	2,180	..	..	..	4,355	3,768	2,298
million Ft	**25,476**	**28,478**	**29,741**	210	314	284	297	322	131	103	241	269	..	..	..	1,481	1,777	1,201

	CUCUMBER			WATERMELON			CANTELOUPE			GREEN PEAS			GREEN BEANS			CABBAGE		
	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
Land Area (hectars)	980	765	798	5,800	6,392	6,083	622	687	665	14,377	15,523	15,607	2,199	1,915	1,925	2,386	2,786	2,587
Total production (tons)	37,989	35,909	33,932	141,086	202,920	182,709	8,593	9,030	11,748	61,075	99,118	92,361	17,034	16,897	17,874	57,127	80,798	65,294
Productivity (ton/hectar)	24,610	31,360	29,460	22,490	30,420	29,350	11,640	11,550	16,150	3,970	6,100	5,620	5,790	6,980	7,380	21,600	26,730	23,010
Sold to																		
trader or processor	22,317	22,221	19,157	54,661	53,606	62,982	943	787	2,169	37,853	56,246	60,234	7,266	7,302	12,190	10,520	13,610	10,151
traditional market	5,223	3,032	2,602	21,429	25,358	20,678	3,085	2,994	3,347	1,770	3,485	2,877	482	546	857	9,161	10,577	11,779
direct export	170	164	154	2,051	1,831	1,756	0	0	0	0	0	154	0	0	0	514	486	285
processed or used by producer	262	361	329	1,018	853	600	25	35	24	227	811	397	46	71	159	3,449	6,732	5,923
own consumption	9,627	8,600	7,251	4,066	7,191	5,186	649	773	789	2,955	3,113	2,946	2,093	1,659	1,691	7,070	7,739	7,185
wastage	74	232	243	502	785	858	85	103	81	125	140	247	64	174	222	1,146	1,251	1,150
change in inventory	2	0	2	1	2	0	0	0	0	11	-12	0	1	0	1	6,249	19,776	11,314
TOTAL	**37,989**	**35,909**	**33,961**	**141,086**	**202,920**	**182,709**	**8,593**	**9,030**	**11,748**	**61,231**	**99,180**	**92,361**	**17,068**	**16,911**	**17,874**	**57,157**	**81,003**	**65,436**
Imports																		
tons	14,867	13,560	11,573	12,994	7,023	5,245	3,974	1,341	830	219	72	24	18	85	379	5,583	5,247	3,886
million Ft	2,191	1,777	1,710	1,016	569	479	574	227	158	41	13	10	14	24	75	421	406	261
Exports																		
tons	10,531	9,915	11,079	58,768	45,788	54,014	56	107	1,433	128	79	312	8	12	99	3,671	3,939	4,040
million Ft	1,623	1,453	2,019	3,947	2,475	3,470	11	26	111	25	9	44	3	2	21	896	848	886

	SALAD			SPAGETTI SQUASH			GREEN PEPPERS			TOMATO PEPPERS			SWEET CORN			SPICE PEPPERS		
	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
Land Area (hectars)	243	288	351	302	228	245	2,451	2,105	1,999	700	499	595	21,837	26,532	29,366	1,609	2,400	2398
Total production (tons)	7,873	7,627	8,278	7,099	7,397	6,910	109,533	117,511	79,125	11,923	9,741	12,833	302,757	427,290	433,613	14,460	20,792	21864
Productivity (ton/hectar)	18,250	13,950	13,200	14,120	19,350	16,820	33,860	44,780	33,270	15,830	16,970	19,420	13,610	15,860	14,580	8,650	8,450	7,950
Sold to																		
trader or processor	2,880	3,109	3,581	1,156	1,361	2,632	26,757	30,938	33,121	3,434	4,831	5,904	142,610	268,780	284,403	12,980	15,430	10,934
traditional market	907	935	1,211	983	1,101	1,207	33,441	36,948	21,478	2,106	1,879	1,898	7,938	12,914	7,079	425	1,142	1,091
direct export	283	190	0	0	0	0	3,156	3,082	3,128	174	144	0	0	0	12	0	0	0
processed or used by producer	19	20	18	145	262	243	255	780	699	122	1,180	1,307	969	1,114	6,059	601	542	1,912
own consumption	1,350	1,217	1,251	1,927	1,692	1,538	7,582	7,249	6,410	879	790	785	3,028	3,626	4,566	536	486	487
wastage	27	27	26	39	34	103	226	228	307	33	44	300	737	1,305	3,886	20	24	9
change in inventory	1	-1	-1	0	0	0	32	0	-31	-7	391	0	-1,063	517	-1,033	-102	-45	-19
TOTAL	**7,873**	**7,627**	**8,278**	**7,099**	**7,397**	**6,910**	**109,555**	**117,628**	**79,220**	**11,945**	**10,130**	**13,830**	**303,002**	**427,475**	**436,812**	**14,460**	**20,792**	**21,864**
Imports																		
tons	2,159	2,711	2,765	..	..	..	10,490	8,008	4,476	..	..	..	1	1,157	1,750	1,506	2,389	1,717
million Ft	503	533	595	..	..	..	3,133	2,487	1,372	..	..	..	1	32	49	957	1,700	1,099
Exports																		
tons	1,081	916	1,549	..	..	..	21,703	23,033	24,739	..	..	..	919	1,620	1,591	2,388	2,336	1,957
million Ft	267	313	345	..	..	..	7,223	6,262	6,979	..	..	..	224	252	283	2,206	2,273	1,968

Appendix M. Morakert Financial Indicators

HUF mio	2006	2007	2008	2009	2010
Net Sales	8223	5162	4713	2004	566
Results from operations	116	25	-1400	-599	-697
Financial results	-68	-16	-206	36	-160
financial income	56	60	50	349	188
financial expenses	124	76	256	314	348
Net Income	48	6	-1606	-563	-857
Current Assets	1778	1458	1357	1170	99
inventory	588	680	192	123	25
receivables	1173	763	1163	1039	73
Fixed Assets	1917	2069	2150	1949	1758
TOTAL ASSETS	3898	3937	3860	3753	1858
Current Liabilities	2112	2206	3105	3574	3207
owed to suppliers/members	872	1197		1223	758
Long Term Liabilities	397	344	998	864	728
Equity	1024	1268	-1606	-1219	-2077
TOTAL LIABILITIES & EQUITY	3898	3937	3860	3753	1858
Fixed Assets / Total Assets	0.49	0.53	0.56	0.52	0.95
Current Assets/ Total Assets	0.46	0.37	0.35	0.31	0.05
Equity / Total Assets	0.26	0.32	-0.42	-0.32	-1.12
Liabilities / Equity	2.81	2.10	-3.40	-4.08	-1.89
Current Assets / Current Liabilit	0.84	0.66	0.44	0.33	0.03
Net Income / Net Sales	0.006	0.001	-0.341	-0.281	-1.514
Net Income / Total Assets	0.012	0.002	-0.416	-0.150	-0.461
Net Income / Equity	0.047	0.005	1.000	0.462	0.413

source: author prepared based on various statistical and government sources

Appendix N. DelkerTESZ Financial Indicators

HUF mio	2006	2007	2008	2009	2010	2011	2012
Net Sales	4468	4601	5340	5020	5853	5198	5947
Results from operations	180	108	29	77	85	-18	42
Financial results	-71	-10	-3	-48	-31	71	20
financial income	18	51	57	25	20	42	56
financial expenses	89	61	60	73	51	29	-36
Net Income	99	90	25	30	51	11	7
Current Assets	714	503	562	708	732	653	836
inventory	69	80	85	136	127	113	157
receivables	295	303	431	427	572	431	633
Fixed Assets	600	619	652	774	778	778	797
TOTAL ASSETS	1317	1130	1217	1483	1648	1591	1724
Current Liabilities	560	345	390	329	468	500	572
owed to suppliers/members	164	168	243	253	276	310	294
Long Term Liabilities	146	40	40	313	259	171	216
Equity	584	687	731	822	885	904	920
TOTAL LIABILITIES & EQUITY	1317	1130	1217	1483	1648	1591	1724
Fixed Assets / Total Assets	0.46	0.55	0.54	0.52	0.47	0.49	0.46
Current Assets/ Total Assets	0.54	0.45	0.46	0.48	0.44	0.41	0.48
Equity / Total Assets	0.44	0.61	0.60	0.55	0.54	0.57	0.53
Liabilities / Equity	1.26	0.64	0.66	0.80	0.86	0.76	0.87
Current Assets / Current Liabilities	1.28	1.46	1.44	2.15	1.56	1.31	1.46
Net Income / Net Sales	0.022	0.020	0.005	0.006	0.009	0.002	0.001
Net Income / Total Assets	0.075	0.080	0.021	0.020	0.031	0.007	0.004
Net Income / Equity	0.170	0.131	0.034	0.036	0.058	0.012	0.008

source: author prepared based on various statistical and government sources

Appendix O: Data Sources Used on Hungarian POs

TESZ number (order in which POs were established): Ministry of Rural Development

Location: Ministry of Rural Development

Main activity: Ministry of Rural Development

Legal form: Ministry of Rural Development

Year registered: Hungarian Department of Justice records

Number of members aggregated: from ministry of Rural Development official in charge of overseeing POs

Main products: interviews, PO website, other public information sources (press releases, etc.) and notes to the financial statements

Value added activities: PO website, other public information sources (press releases, etc.) and notes to the financial statements

Production area aggregated: PO website, other public information sources (press releases, etc.) and notes to the financial statements

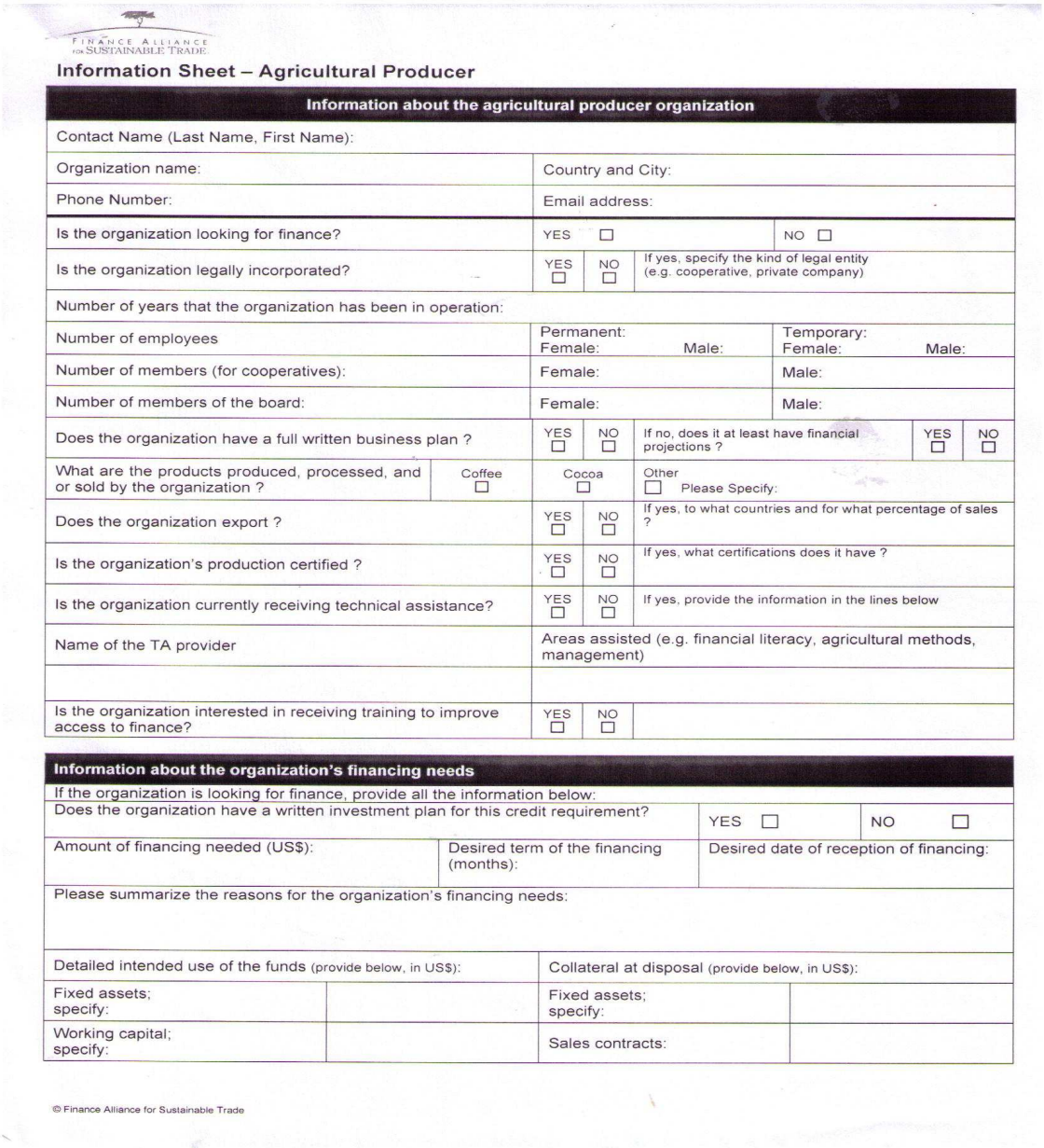
Contract with supermarket chains: PO website, other public information sources (press releases, etc.) and notes to the financial statements Export: PO website,

other public information sources (press releases, etc.) and notes to the financial statements

Certification: PO website, other public information sources (press releases, etc.), notes to the financial statements and interviews

Financial indicators: Hungarian Justice Department database of over 100 different forms have been mined to obtain financial indicators for 2009-2012. Ratios and composite financial variables were calculated by the author. Interviews with government officials and market participants were used to confirm and verify key pieces of information.

Appendix P: FAST Information Sheet



FINANCE ALLIANCE for SUSTAINABLE TRADE

Information Sheet – Agricultural Producer

Information about the agricultural producer organization						
Contact Name (Last Name, First Name):						
Organization name:			Country and City:			
Phone Number:			Email address:			
Is the organization looking for finance?			YES ☐		NO ☐	
Is the organization legally incorporated?			YES ☐	NO ☐	If yes, specify the kind of legal entity (e.g. cooperative, private company)	
Number of years that the organization has been in operation:						
Number of employees			Permanent: Female: Male:		Temporary: Female: Male:	
Number of members (for cooperatives):			Female:		Male:	
Number of members of the board:			Female:		Male:	
Does the organization have a full written business plan ?			YES ☐	NO ☐	If no, does it at least have financial projections ?	YES ☐ NO ☐
What are the products produced, processed, and or sold by the organization ?	Coffee ☐		Cocoa ☐		Other ☐ Please Specify:	
Does the organization export ?			YES ☐	NO ☐	If yes, to what countries and for what percentage of sales ?	
Is the organization's production certified ?			YES ☐	NO ☐	If yes, what certifications does it have ?	
Is the organization currently receiving technical assistance?			YES ☐	NO ☐	If yes, provide the information in the lines below	
Name of the TA provider			Areas assisted (e.g. financial literacy, agricultural methods, management)			
Is the organization interested in receiving training to improve access to finance?			YES ☐	NO ☐		

Information about the organization's financing needs				
If the organization is looking for finance, provide all the information below:				
Does the organization have a written investment plan for this credit requirement?			YES ☐	NO ☐
Amount of financing needed (US$):	Desired term of the financing (months):		Desired date of reception of financing:	
Please summarize the reasons for the organization's financing needs:				
Detailed intended use of the funds (provide below, in US$):		Collateral at disposal (provide below, in US$):		
Fixed assets; specify:		Fixed assets; specify:		
Working capital; specify:		Sales contracts:		

FINANCE ALLIANCE for SUSTAINABLE TRADE

Information Sheet – Agricultural Producer

Other; specify:		Inventory:	
		Other; specify:	

Do you have credit history? (i.e. have you received financing in the past ?)	YES ☐	NO ☐	If yes, please indicate the number of years with credit history:

FINANCIAL STATEMENTS OF THE LAST THREE YEARS			
Provide the following information:*	201_	201_	201_
Assets (US$)			
Liabilities (US$)			
Equity (US$)			
Sales (US$)			
Cost of production sold (US$)			
Net profit/loss (US$)			
Have the organization's financial statements been audited?			YES☐ NO ☐
Volume of 1st product _____ sold Specify measure unit: _____			
% of the 1st product sold as certified			
% of the 1st product exported			
Volume of 2nd product _____ sold Specify measure unit: _____			
Total land cultivated		% of the land managed under a certification schema:	

PROJECTED FINANCIAL STATEMENTS			
Provide the following information:*	201_	201_	201_
Assets (US$)			
Liabilities (US$)			
Equity (US$)			
Sales (US$)			
Cost of production sold (US$)			
Net profit/loss (US$)			

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Biography

Eva Szalkai Csaky was born in Budapest, Hungary on September 4, 1971. She obtained her BS in Finance and Accounting with specialization on financial intermediaries from the Budapest Business School (1993). She subsequently obtained her MS in Finance from George Washington University in Washington D.C. (1995) and MA in Public Policy from Duke University (2009). Since joining the World Bank Group in 1996, Eva has been responsible for various investment areas and related financial innovations covering over two dozen countries around the world, working in the areas of energy efficiency, renewable energy, energy and clean water access and farmer and small enterprise productivity and sustainability. Eva is currently responsible for the areas of sustainable value chains and social entrepreneurship and is leading several efforts with the aim of reaching smallholder farmers. Eva had a scholarship from the Hungarian state for outstanding academic performance as well as a corporate scholarship. IFC has received several awards for her work in international development, the latest one being IFC's innovation award for "Enhancing the Productivity, Efficiency and Profitability of Dairy Farmers through Innovative Cooling Technologies". She has also been part of IFC's Corporate Leadership Program and Financial Markets Women Leadership Group. Eva has also served on several committees and roundtables, and spoken at numerous conferences and events. In the summer of

2014 Eva joined Southern Methodist University as the Research Professor and Director of the Hunt Institute for Engineering & Humanity.